

SOAP

and

SANITARY CHEMICALS

Volume XXIV

Number 1

January, 1948

*For index see
"Blue book"*

CONTENTS

Editorials	31
The Potash Industry and Caustic Potash.....	33
Dog Soaps	36
By Milton A. Lesser	
Synthetic Detergents on File.....	39
The Coconut Oil Market.....	41
By John R. Skeen	
Free Alkali in Soaps.....	42
By T. Ruemele	
Penetration of DDT into Wood Surfaces.....	118
By William R. Schmitz and Mary B. Goette	
The Federal Trade Commission in Your Business.....	123
By John D. Conner	
ANTU—The Lethal Dose.....	127
By A. R. Latven, A. B. Sloane and J. C. Munch	
What the Distributor Expects from the Manufacturer.....	133
By Mitchell M. Rosenfeld	
Germicidal Behavior of a Quaternary Ammonium Compound.....	137
By John W. Klimek and L. E. Umbreit	
Slipperiness of Walkway Surfaces.....	147
By Percy A. Siegler	
New Trademarks	55
Bids and Awards	59
Raw Material Markets	61
Production Clinic	71
Products and Processes	79
New Patents	81
Sanitary Products Section	87
Classified Advertising	183
Advertisers' Index	187

Published Monthly By

MAC NAIR-DORLAND COMPANY

254 West 31st St., New York, N. Y.



Subscription rate, \$4.00 per year. Foreign, including Canadian, \$5.00. Copy closing dates—22nd of month preceding month of issue for reading matter and 10th of month preceding month of issue for display advertising. Reentered as second-class matter, Feb. 9, 1938, at Post Office, New York, under act of March 3, 1879.

We checked consumer preferences!
We canvassed packer demands!
We gave it top priority with our expert designers!

We introduce the

a new line of Duraglas containers

Months of intensive research, designing and engineering have produced our new "Shelfline." These squared oblongs are made-to-order—your orders and your customers'!

Here are the container advantages you and Mrs. Consumer told us you wanted—advantages which the new "Shelfline" offers:



3 Wide front and back panels for maximum label display... adequate space for side labeling if desired.



1 Balanced, space-saving, streamlined proportions... stable base... won't roll on counter, table or shelves.



4 Twelve sizes:
 $\frac{1}{2}$ oz., $\frac{3}{4}$ oz., 1 oz., 2 oz.,
 3 oz., 4 oz., 5 oz., 6 oz.,
 8 oz., 12 oz., 16 oz., 32 oz.!



2 Easy-to-pour-from—new style shoulders act as a funnel...



5 Only four cap sizes required to fit all twelve sizes of the narrow neck line.

668.105
5676

AS THE EDITOR SEES IT

AS American industry in general, and the soap industry in particular, sally forth into 1948, misgivings are numerous. A recession in business had been expected for the latter part of 1947. But it did not arrive. Now, business men are wondering if it will make its advent in 1948. In spite of a continuing demand for new equipment for both replacement and expansion, of a high ratio of employment, of a high level of industrial activity,—in spite of all the good signs, the psychology of business appears to be that of a man walking on thin ice and wondering when he will plunge through into the chill waters below.

Our feeling is that Washington may have a lot to do with the current feeling of uncertainty. That the United States is up to its arm-pits in a morass of international politics,—and showing every inclination to get in even deeper,—tends to unsettle the business outlook. The spectres of further inflation and of the Marshall Plan and their effects on raw material supplies and prices hang over the heads of every manufacturer, large or small. That government controls,—and the talk is for more of them before present ones are dropped,—are a thorn in the side of industry and a constant threat to business stability, we believe experience has proved quite conclusively.

But, as we look back over a quarter century, we cannot remember the beginning of a single year at which there was not some fly in the ointment of the business outlook. Always there was something. Never was there a year when all ahead appeared completely satisfactory to everybody,—except possibly in January, 1929. And what happened before that year ended all of us know too well. That our government is playing politics up to the hilt, both nationally and internationally, there is no doubt. That we may or may not be receiving a true picture of affairs is quite apparent. Politicos always have axes to grind, and if they can grind them by scaring

hell out of business or the people generally, trust them to do exactly that.

Although misgivings may be many, we feel that the only course for business is to continue going ahead, to plan, and to paddle its own canoe as in the past. And maybe income taxes will be cut in 1948. Who knows? But if we are to receive a rap on the chin over the next year or two, we might as well take it on the move as just to sit and wait for it.



IF plans for peanut plantings in British African colonies develop, as reported, during 1948, peanut oil may be running out of our ears a year or so hence. The report goes that British interests will plant five million acres in peanuts in Africa in 1948. This is a figure just about six times as great as the entire peanut acreage of the United States, and if accurate, could mean a serious change in the complexion of the world's peanut oil production. Its effect on other oil and fat production, including chiefly cottonseed, soya bean and coconut oils, might be considerable.

Not all American authorities on the oil and fat market are in agreement that world scarcities and high prices will continue through 1948. In spite of reduced visible supplies and the Marshall plan, some feel that the market is due for a bad break before June. They evidently believe that world production of vegetable oils outside of the United States, stimulated by high prices and already making important strides forward, is due to back up on the American market before the end of 1948. Some are inclined to question the current statistical picture. When the tide really starts to run, they maintain, all artificial retaining walls of one sort or another will be swept aside,—and those with stocks will find themselves holding the bag.

Irrespective of who may be right in their predictions for oil and fats during 1948 and beyond,

744-258
744-20

the situation is dangerous to every buyer. As long as prices continue to move in daily fluctuations over a range sometimes ten or twenty times as wide as pre-war normal, the position of the buyer can be nothing else but precarious. When prices drop from an excessively high level to what at the time may be viewed as an intermediate figure, who is to judge whether the new price should be considered high or low and whether the next move may be up or down? In the dizzy market fluctuations of 1947, prices sank still lower after a break in some instances and in others rebounded quickly to previous heights.

The market throughout the past year was highly speculative and followed no set pattern. As long as conditions continue in this direction, it is likely to remain upset and uncertain. If new production of vegetable oils from various parts of the world, about which we have heard reports, become fact, the long-range course of the market is obvious. In the meantime, soapers must have oils and fats currently to run their plants. However, unusual caution in commitments beyond the middle of the year is indicated. There are those who feel that they would rather be short than long come next July first.



IF American industry were dependent upon foreign caustic potash at this time, we wonder what would be happening right now. Elsewhere in this issue is a brief history of the development of the production of American potash, and more specifically caustic potash,—a recitation of facts which every user of this alkali should engrave in his memory. Those manufacturers of liquid and other potash soaps who went through World War I will probably not need their memories refreshed. Their experiences of 1915-18 will take more than a lifetime to forget. But to those not familiar with the more than ten-year struggle to establish economic caustic potash production in the United States, the background is more than interesting; it is enlightening.

That Congress back in the 1930s offered little aid in establishing a self-sufficient potash industry in America,—amazing as it would seem after

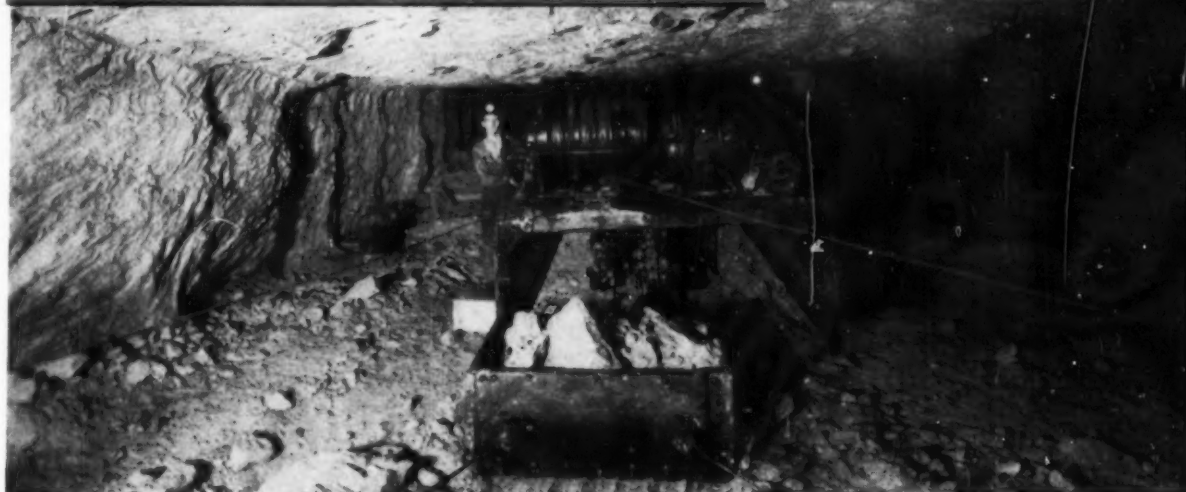
the experiences of World War I,—left producers with the alternative of closing up shop or “lifting themselves by their own bootstraps.” They chose the latter,—and wholly as a result of superior technological advances successfully met the strong competition of the German and French interests in the American market. To this success alone, soapers and other users of caustic potash may ascribe the fact that this commodity was freely available during World War II,—and, if you please, is available today. Had it been otherwise, we beg to repeat, the more recent history of potash at the soap kettle would have been a vastly different story.



CANADIAN soapers, as they prepare for a removal of fat and oil price controls and the abandonment of subsidies by the Dominion Government, are set for a sharp upward movement in prices for all types of soaps. At the same time, soap manufacturers do not expect their quota of fats to be increased above the current 88 per cent of average use in 1940-41. Although soapers in Canada will now be free to enter the market and bid for fat supplies, there seems to be serious doubt that they will be any more successful than heretofore in obtaining their quota supply. But bidding is bound to force fat and oil prices to such levels that controls on soap prices will of necessity have to be removed shortly, or, as happened in the U. S. under similar circumstances a couple of years ago, soap production will decline sharply.

With the beginning of the elimination of controls, we feel that the first step in Canada has been taken to put soap making back on a normal economic basis. The immediate effect may be a skyrocketing of oil, fat and eventually soap prices. It may not be pleasant for soapers or consumers. But the long-range results should be to stimulate oil and fat production, in sharp contrast to the opposite effect of price controls, and remove the main underlying cause of today's main troubles, shortages and more shortages. Because, not until raw materials are available in adequate supply, can there be a successful normal condition.

CAUSTIC POTASH



This powerful electric scraper-conveyor loads freshly blasted sylvinite ore into mine cars at Potash Co. of America's Carlsbad mine.

CONSUMERS of caustic potash have little to fear on account of the war in Europe" was the statement made by S. Willard Jacobs, vice-president of Niagara Alkali Company, in December 1939, (1) before the United States entered World War II. The basis for this confident prediction was the growth and stability achieved by the American potash industry during the past 25 years. The record of the potash industry, and in fact of the entire American chemical industry, during this latest war, was outstanding, whether measured in terms of output, prices, or labor relations. Starting in the days of inadequate supply and skyrocketing prices during World War I, the potash industry matured through the years to a position where it was able to offer the country stable prices and a tremendous expansion of output during the recent conflict.

The segment of the potash industry which is responsible for the manufacture of caustic potash is dependent on the suppliers of crude muriate as their main raw material. The

What a self-sufficient American potash industry has meant to the users of caustic potash over the past twenty-five years... the story of potash since 1915..

requirements of this raw material for caustic potash are small in comparison with other needs, such as for fertilizer. So it has been therefore, the policies of the potash industry toward stabilizing the potash needs of the American farmer that have contributed so largely to a constant supply of caustic potash at a reasonable price.

A few highlights regarding the supply of muriate of potash, presented by Jules Backman, N. Y. Univ. (2), serve to illustrate that Mr. Jacobs' prophecy had been accurate. The industry is small, with relatively few producers. Annual sales of potash salts at wartime peak were about \$30,000,000. Domestic production has been expanding steadily since 1921. Output expanded from 10,171 tons of potash (in terms of K_2O , the common denominator for all potash figures in the industry) in that year to 312,000 tons

of K_2O in 1939 and on to 835,000 tons in 1944. Imports accounted for more than half of the domestic consumption before the war cut them off. The production increase of 522,368 tons in 1944, as compared with 1939, more than offset by a wide margin the decline in imports. The potash industry's wartime expansion was privately financed.

Unlike many other industries where there are only a few producers, the situation in the potash industry did not result from a series of mergers. It is the result rather of such factors as these: (1) Relatively few important sources of potash can be worked profitably at the existing level of prices. (2) The principal deposits were on government land and the government stopped granting permits in 1934 in order to prevent over-development. (3) Relatively large development costs

**Three-fourths of industry's war expansion
Government financed. Potash industry
needed no Government subsidies . . .**

exist compared with the sales volume of the industry.

A better understanding of these factors and the reasons for them may be gained from a glimpse into the history of the industry and into the processes involved in mining potash, production of a crude muriate concentrate and its conversion into other potash salts for industry such as caustic potash.

AT the beginning of the first World War, the Germans had a world monopoly on potash salts. This monopoly came into being as far back as 1861 when the Germans first mined the natural bed of salts near Stassfurt. They won complete control of the world trade in this basic fertilizer material when the only other known workable beds in adjacent Alsace came into German hands at the close of the Franco-Prussian War. During the early stages of World War I, as a spur to encourage the United States to induce Britain to loosen her blockade, the Germans embargoed the export of their potash. It quickly became a real famine chemical in the Western Hemisphere and the price went from \$44.25 a ton to \$483.63 (3). This meant that while the American farmer was paying 76 cents for each unit of potash (in terms of K_2O) before the war, at the peak in December, 1915, he was forced to pay \$10.06. After a full year of World War II, when no more potash came out of Germany and France than in 1914-15, he paid \$3½ cents—roughly fifty per cent less than when the German monopoly controlled supplies and only .027 cents more than he paid when the war started.

The only muriate of potash in the U. S. in 1915 were small odd lots. When the price soared, frenzied efforts were made to recover it from wood ashes, cement-mill flue dust, distillery slops, and from minerals such as the New Jersey greensands, Wyoming

leucit, Utah alunite and the natural salt deposits and briny lakes of the west. Production of muriate of potash (potassium chloride) was started at Searles Lake, California before the end of World War I, but the output of this development was low and it did not prevent muriate prices from soaring to unbelievable heights.

These developments had an overwhelming effect on the market for such small amounts of caustic potash as were available. Extravagant prices for raw material combined with scarce and expensive labor and high conversion costs to form the basis of a speculative orgy. Resellers advanced prices to fantastic levels and consumers were at their mercy. A carload of 35 tons of solid caustic potash of not too good quality changed hands during that period at the astounding price of \$70,000. (1)

HAPPILY, the potash situation of 1915-1918 has been completely changed by removing the cause which created it. Modest sums appropriated by Congress in the twenties provided for an investigation of natural potash salts in our southwest. Near Carlsbad, New Mexico, the Potash Company of America, United States Potash Company and International Minerals and Chemical Corporation are now mining beds of sylvinit, a mixture of sodium and potassium chlorides, from potash-bearing seams eight to 14 feet thick. These potash beds appeared from time to time in oil-drilling cores, and after the Snowden-McSweeney Oil Co. had found the rich Carlsbad sylvinit bed, Congress appropriated half a million in 1926 to explore for potash on Government-owned lands in that region.

Between 1926 and 1930, the Snowden - McSweeney interests spent over \$600,000 in core-drilling in this area and three other private prospectors were also actively exploring the region. There was proved up an area of

some 50 square miles, beneath which lie beds of sylvinit four or more feet thick. Estimated reserves are close to 200,000,000 tons, a quarter of which runs 28 per cent K_2O or better—material about twice as rich in potash as the famous Stassfurt deposits (3).

In the years after the first World War, German and French producers had buried the hatchet regarding competition and formed a cartel which sold in the United States through a single agency. It was then possible to bring foreign potash into the United States to sell well below domestic production costs. With any sort of tariff on fertilizer materials fought tooth and nail by the farm block, a venture into potash production, even from the promising Carlsbad beds was fraught with extraordinary risks.

In spite of this, operations were begun at Carlsbad in 1931. Almost immediately the company faced an unexpected hazard. For several years, the price of imported potash had been maintained somewhat lower than before the war, at approximately 70 cents per unit. Then Spain and Russia, both new potash-producers outside the cartel, began dumping potash on the American market. The price dropped to as low as 30 cents per unit at just the time the American mines were getting into production and continued low for four years. And the American producers had set up their cost figures on the basis of a selling price of 70 cents per unit, C.I.F. American ports.

THE first commercial potash produced at Carlsbad was a crushed raw ore. However, the price war, developing in the early thirties, threatened to destroy the infant industry if it continued to ship this type product. Concentration of the ore by solution, evaporation and crystallization and later flotation methods permitted shipment of potash in the form of a potassium chloride (muriate) concentrate which minimized transportation costs. In this process, the sylvinit ore is finely ground and carried to the flotation machines in a saturated solution of the ore itself. In the machines, the saturated solution carrying the potash ore is agitated by means of air, and surface-

active flotation agents are added which create a froth, bringing to the surface either the potash muriate or the other material, from which the potash is to be separated, depending on the method of treatment, thus completing the desired separation.

At Searles Lake, California, where the American Trona Corp. (now the American Potash and Chemical Corp.) first started during World War I, a concentrated mixture of salts (sodium chloride) gypsum, borax, potash and others) is found in a great natural lake of white slushy salts permeated by a brine. The brine is pumped to the nearby processing plants where it is concentrated in triple effect evaporators 86 feet high, in which common salt (sodium chloride) precipitates. On cooling, the concentrated liquor deposits crude muriate of potash which is refined to a basis of about 60 per cent K_2O . Borax is produced from the same brine by agitating it after the potash salts have been deposited from the quiet liquor.

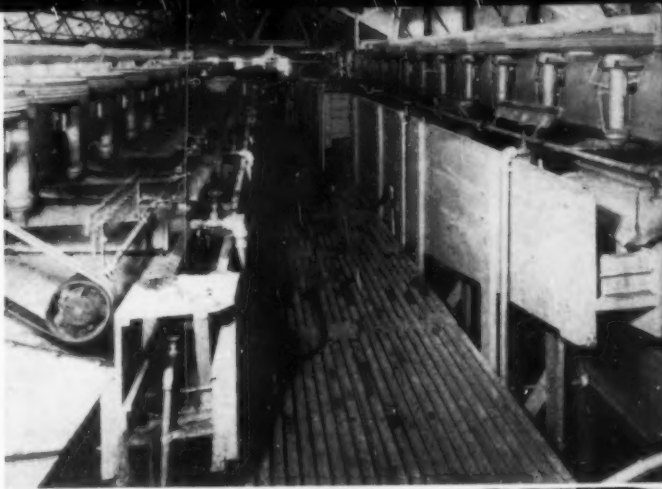
POTASH muriate (refined) is the raw material for producing caustic potash. In caustic potash manufacture, the muriate is dissolved to form a brine that is purified, filtered and then fed to the electrolytic cells. The electrolysis liberates hydrogen and chlorine, and caustic potash is formed in solution in the cell liquor. This cell liquor is further purified and sold as a 45-50 per cent potassium hydroxide solution and also fed to concentrators for evaporation to either 85 or 90 per cent solid KOH content.

Although the uses of caustic potash are widely diversified, consumption is relatively limited and the production of this alkali is a small and specialized industry in comparison with the total alkali production of the United States. Its manufacturing problems are different from other alkalies and call for special skill and thorough supervision at every step to meet the demands of various users with respect to high purity.

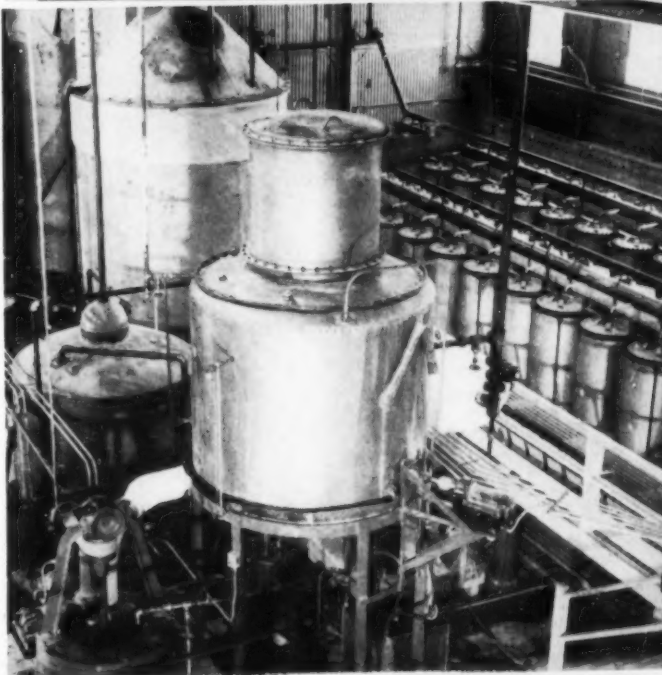
It was through this careful attention to quality necessary to satisfy the specialized needs of certain types of customers that the caustic potash segment of the industry carried on the fight, along with the fertilizer potash people in withstanding the cartel com-

(Turn to Page 163)

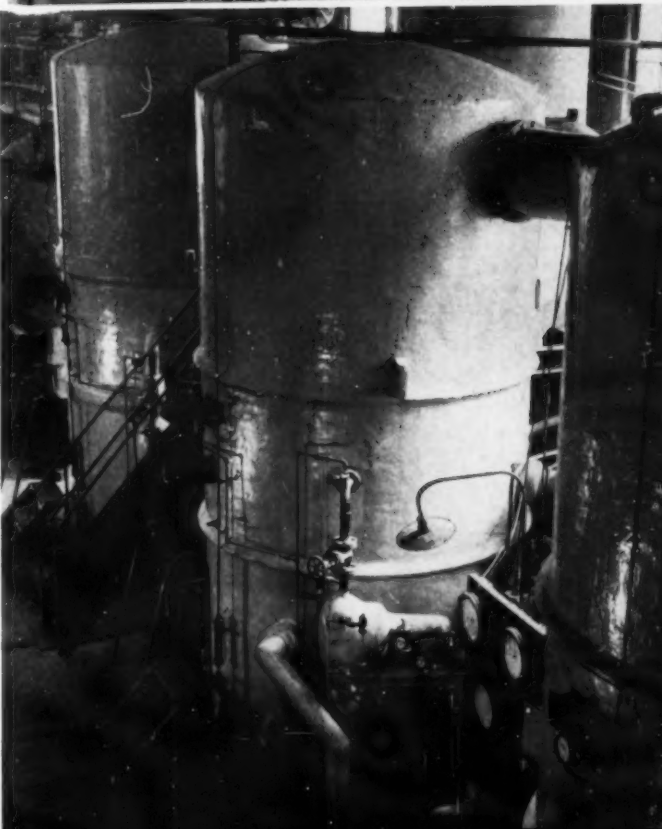
Flotations cells separate common salt, clay, etc. from potassium chloride (muriate) at Potash Co. of America's plant.



Potassium chloride is converted to hydrogen, chlorine and caustic potash in electrolytic cells shown in the background.



Multi-circulation concentrators evaporate caustic potash liquor to about 85 per cent KOH at Niagara Alkali plant.





DOG SOAPS

By Milton A. Lesser

DOG owners—and there are millions of them in this country—spend a good deal of time and money on the welfare of their animals. Indeed, in some cases, the grooming of these animals has become almost a refined art, a fact well illustrated in the case of show dogs. Most dog owners, however, do not go to such extremes. Nonetheless, they are willing to pay a little more for the special soap that will make their animals more comfortable and clean enough for human association.

Dogs, especially household pets, may be bathed and brushed at suitable intervals to clean the skin and keep it in a healthy condition. (1) The appearance and condition of a dog's coat are influenced to a great extent by the general condition of the animal. Disturbances in the general metabolism, brought about by various disorders, are usually reflected in the skin and

hair. Although the skin and hair show a marked degree of resistance to ordinary external conditions, certain mechanical, chemical or temperature influences exert irritating effects which predispose to the production of skin affections. (2) Too frequent bathing with excessively alkaline or highly medicated soaps may lead to dandruff or scurfiness, dermatitis and other skin disorders in dogs. (3, 4)

While washing is beneficial to a dog's health and comfort, the animal should be bathed only as often as is necessary to keep the skin clean and healthy and free of odors. In general there is a tendency to bathe dogs too frequently. This may be attributed, to some extent at least, to the information given in the pet care manuals issued by certain animal products manufacturers. In all fairness, however, it should be mentioned that a number of manufacturers handbooks warn that

too many baths tend to defat and dry the skin and spoil the coat. Experts in the care of dogs say (4) that in the summer the maximum number of baths should be twice a month, and in the colder season, once a month. There is general agreement that the temperature of the bath should be above 100°F. or slightly warmer and that the dog should be thoroughly dried with a rough, absorbent towel.

Unless filth makes it absolutely necessary, puppies should never be bathed until they are at least three months old and preferably not until they are about six months old. Where dirt, fleas and odors are to be combatted on puppies, an effective job often may be done with a suitable dry cleaning powder rather than with a soap and water bath.

The consensus of opinion (4) seems to be that the ideal dog soap would be one that would clean per-

fectly, destroy "doggy" odors, kill fleas, improve the sheen of the coat, medicate the skin, and finally, be unobjectionable to the animal itself. Veterinarians have long urged that dogs be bathed with a mild, neutral, perhaps superfatted soap. With few exceptions, however, manufacturers of dog soaps try to attain the ideal by incorporating medicating agents that will provide a "sanitary" odor, have an antibacterial effect, and help to eradicate fleas, lice and other parasites. Phenols, cresols and a variety of other chemical or medicating agents are used for this purpose. While some of these agents are of value in the treatment and perhaps the prevention of certain specific skin disorders, their inclusion hardly seems justified in a soap for routine dog washing.

It is a long established procedure to include a small proportion of phenols in dog soaps and no doubt it does provide some beneficial effects. Phenol is of course a powerful antiseptic, but one cannot overlook the fact that its efficacy is markedly reduced in bath dilutions, especially in

cresol explains the usefulness of such products.

Undoubtedly more dependable and efficient is the inclusion of insecticides known to be effective against fleas and other dog-tormenting insects. Here, however, the compounder is faced with the twin problems of toxicity to the animal and stability in the presence of soap. Another factor which enters the picture, especially with some of the newer insecticides, is the amount of active agent left on the dog's skin and hair. This is important, not only with regard to reinfestation, but also with respect to systemic absorption. As will be shown later, these problems are being studied and some progress has been made.

Dog soaps are provided as cakes, liquids or powders. Another group of products used in the care and grooming of dogs' coats are the dry cleaning powders which are akin to the dry shampoos used by humans.

THE composition of solid cake soaps for dogs varies with the different manufacturers. Merely by way

erties to a dog soap. The manufacturer of one well known brand of dog soap states that his product employs a palm oil base. This, it is claimed, adds a glossy sheen to the animal's coat and tends to keep the skin soft and healthy.

Veterinarians and other experts in the care of dogs recommend (4) a castile type soap or a superfatted toilet soap for the routine washing of dogs. In addition to lanolin (9) and lecithin, (10) which have already been discussed in this publication, there are various other agents which may be used as superfatting agents. Among these are lanolin derivatives (e.g. wool wax alcohols), various oils, petrolatum, certain waxes, spermaceti, glycerine and other materials. (11)

The perfuming of a dog is an important consideration, not only to the dog but to his owner as well. One authority in this field is quoted (4) as advising that perfumed soaps should be avoided because perfumes and all strong odors are unpleasant to dogs. Since one of the prime functions of a dog soap is to eliminate and retard the return of the animal odor, however, some kind of deodorant may be a desirable addition in a dog soap. Avoiding the too sweet odors and the heavy medicinal odors, it would seem that a mild pine, cedar or other "natural" odor would prove satisfactory to the noses of the dog and his master. Perhaps the commercial perfume houses could be as helpful in this connection as they have been in other fields.

Many dog owners show a decided preference to liquid types of dog soap. With their potash base, such soaps are more readily rinsed out and show less tendency to form a precipitate or curd that may dull or mat the animal's coat. As a rule, such liquid shampoos consist of a clear solution of a fully saponified soap in distilled water. Alcohol and glycerine may or may not be included, and various other ingredients may be added to impart certain desirable properties.

In general, methods for producing the requisite soft soap bases are essentially the same as those employed for making shampoos and liquid hand soap. Detailed discussions on the production of such bases are available in the technical literature. (8, 12, 13, 14)

Present day products run the gamut of soaps, shampoos, bubble baths, powders and showers

the presence of soap. (5) Its ability to provide a sanitary odor which covers the doggy smell is obvious to anyone who has ever used a carbolic soap. Whether the dog likes this strong odor is another matter which rates some consideration. As to its action against fleas, there may be cited the authoritative recommendation (6) that dogs be lathered with "a good carbolic soap," to be followed by brushing or combing to remove any remaining fleas, "which will be dead or stupefied."

Cresol and cresol-containing compounds exert similar antibacterial and odor-covering effects in dog soaps. Dilute cresol solutions are highly satisfactory as washes for treating dogs infested with fleas. Cresol in soap probably exerts some anti-flea action, but can hardly be considered as effective as the generally recommended 3 per cent aqueous solution. (6, 7) Probably the combined action of soap and

of illustration, one well-known brand of anti-flea dog soap is labelled as containing:

	Per cent
Soap	88.0
Phenol	1.0
Pine oil	0.5
Zinc oxide	0.0
Water	10.0

As indicated by Thomssen and Kemp, (8) cold-process coconut oil soap containing 5 per cent of pine tar finds a ready market as a dog soap. According to one study, (4) however, straight cold-made process coconut oil soaps are generally too harsh for a dog's skin, which is definitely more sensitive than the human skin. Hence dog soap should be at least comparable in quality with the better products used for cleaning the human hair and scalp, and should scrupulously avoid excess alkali. A base containing 20 to 50 per cent of coconut oil is customarily used to impart good lathering prop-

Unless full facilities for manufacturing are available, however, the dog soap producer will generally find it more expedient to purchase a ready-made soft soap base from a reputable manufacturer. In any case, for the preparation of liquid dog soaps, the base should be dissolved in the requisite amount of hot water, allowed to cool, and then any additional ingredients and perfume compound are incorporated. The solution should then be allowed to stand for a period of two weeks or more in order to age and settle. It is then decanted into a tank equipped with refrigerating coils, chilled, and filtered. (15)

Illustrative of a typical liquid shampoo for dogs is the following (16) quite simple preparation, which may be perfumed and colored as desired:

	Parts
Soft soap	20
Alcohol	10
Distilled water	70

Somewhat more elaborate is the following composition which is slightly modified from a frequently cited (17, 18, 19) dog shampoo for maintaining the skin and hair in a clean, healthy condition:

	Parts
Soft soap	16.00
Glycerine	5.00
Alcohol	4.00
Phenol	0.75
Eucalyptus oil	0.50
Water, to make	70.00

Also interesting is the citation by Mallis (20) of work done at the Bureau of Animal Industry. The investigators used a stock solution containing 20 per cent coconut oil soap and 5 per cent orthophenylphenol diluted with warm water in a ratio of 1:50. Employed as a shampoo for dogs, the solution was effective in killing their fleas, promoted healing of cuts and other external injuries, and had no apparent toxic effects even in stronger concentrations.

OF course, the synthetic detergents have found important applications in the preparation of liquid shampoos for dogs. Especially important is their freedom from curd formation even in hard waters, so that the coat is left clean and smooth. In the early days when "soapless" shampoos were first introduced, various sulfonated oils were employed. One suggested (18) base, to be adjusted by experiment,

consists of sulfonated castor and olive oils in water in a ratio of 3:2:5. The resulting clear, sparkling preparation should have either a neutral or slightly acid reaction. Since such shampoos cleanse without lathering, the addition of a small amount of saponin was recommended.

This difficulty with regard to lathering properties was obviated with the development of sodium lauryl sulfate and its derivatives. The use of such compounds in shampoos for dogs was recommended (11) over a decade ago, when it was suggested that suitable products could be made by dissolving a suitable amount of the compound in water and adding perfume and color. Since then a number of other synthetic surface-active organic detergents, like the alkyl aryl sulfonates, have been made available for similar application. Many of the compounds are available under various trade names in different degrees of purity or diluted with other agents. Suppliers of these raw materials should be consulted with regard to the suitability of a product for shampoo use. Specific information with regard to formulation is available from a number of manufacturers of synthetic detergents.

Soap-containing dog bath powders are also popular. Quite economical, those powders may contain water softening agents and other detergent aids. Easy to make, one simple shampoo powder, which is said (17) to give "excellent" results, may be made from:

	Parts
Coconut oil soap	10
Borax	20

Another soap-containing shampoo powder may be made from: (16)

	Parts
Powdered soap	50
Borax	25
Sodium carbonate, dry	25

Dry, powdered synthetic detergents may also be used to prepare products of this type. The active agent can be diluted with other materials, which of course must be fully water-soluble and contribute nothing deleterious to the dog washing powder. Dry, powdered sugar has been suggested (16) as a suitable diluent for a dog shampoo made with powdered salt of a sulfonated fatty alcohol. It should also be pointed out that certain of the dry synthetic detergents available

commercially already contain a diluent.

Dry cleaning powders, while not particularly suitable for the routine cleaning and conditioning of a dog's coat, do fill a useful role. Some veterinarians favor their use because they eliminate one source of colds during inclement seasons. They are especially useful for cleaning puppies and young dogs which should not ordinarily be given soap and water baths. Such a dry cleaning powder is rubbed into the dog's coat to absorb some of the dirt and skin excretion. After serving its purpose, the powder is removed by a thorough brushing.

Some dry powders are made of such ingredients as fine pinewood sawdust and magnesium, fuller's earth, kieselguhr or kaolin. (17) Others consist of talc, borax, chalk, fuller's earth or mixtures of such agents. They may also include a powdered insecticidal ingredient. (4) Some also contain a deodorizing or odor-covering agent like pine oil, eucalyptus oil or a specially prepared perfuming compound.

FLEAS, lice and ticks which infest dogs are not only a source of annoyance and irritation to the animals, but may also serve as carriers for dangerous diseases or act as hosts for internal parasites. (2, 7) For these reasons, attempts have been made to incorporate various insecticides into soaps and other cleaners for dogs. Up to a few years ago, pyrethrum and rotenone-containing botanicals like derris were practically the only materials regarded as safe for such uses.

Unfortunately, the pyrethrins of pyrethrum and the rotenone in derris tend to break down under the influence of the alkali present in soaps. This is especially true in the case of liquid soaps. It is very doubtful, therefore, that the inclusion of these materials in soaps exerts any insecticidal action when used in the bath. (4, 8) It may be, as suggested by Mail, (21) that some of the newer antioxidants and synergists for pyrethrum and rotenone will prove effective in overcoming this difficulty. In this event, the use of these newer agents, which are being investigated by a number of workers, (22, 23, 24) may serve to

(Turn to Page 161)

SYNTHETIC DETERGENTS on file



This card file of information on surface-active agents is supplied with gray metal box, instructions for use, a sorting needle, and punch for setting up additional classifications.

THERE are over five hundred different synthetic surface-active chemical products on the market today in the United States, many of which have catchy trade-names with no relation to the type or use of the product. New synthetics are still finding their way to the market and quite a good many others have been withdrawn from sale for one reason or another during the past year. Keeping abreast of both the technical and market aspects of the synthetics is getting to be a headache, particularly to the smaller users, because it generally does not pay to assign help specifically to this highly technical yet fast moving field.

The lines of demarcation between the various surface-active agents, furthermore, are blurred by the fact that some are detergents, some are wetting agents, some are emulsifiers and others have dual properties. A particular product, for instance, may be primarily a wetting agent and secondarily a penetrating agent. To keep in touch with the bulk of information regarding the synthetics available for a particular field involves a great deal of correspondence and record keeping, and many times the data received do not suffice.

A new approach to the correlating of information on surface-active

agents is the use of the "keysort" system for filing technical data. One such system, pictured above,* makes use of a file of cards containing such pertinent data as trade-name, chemical character, properties and description, price, recognized applications and suggestions for possible use.

The cards may be sorted and re-sorted by means of a needle which can be passed through the file removing all cards punched in a certain place. The cards are punched according to a system that will allow for their separation on the basis of several categories of data some of which have already been mentioned.

For example, a manufacturer using a concentrated form of an alcohol sulfate desires to know if a 20-30 per cent liquid variety is available. What is its price and who sells it? Cards of the alcohol sulfates are first separated on the basis of chemical constitution, and then the needle is used to segregate cards of the liquid variety. They are then sorted to determine the ones containing thirty per cent and under active ingredient. A study of the resulting cards will point out the various products available, their price, manufacturer, and other pertinent facts that help in making a selection.

* One such file is supplied and kept up to date by John W. McCutcheon, consulting chemist, New York.

Again, a lime soap sequestering agent may be required for a shampoo. This should preferably not be a sodium salt. What compounds are available? By needling dispersing agents under "principal uses" and studying the relatively few cards dropped out, it is noted under "remarks" that one company making a typical sequestering agent in liquid form, does make the potassium salt. A wire or phone call to the company in question brings the desired information. A cosmetic manufacturer has found that an alkyl aryl sulfonate is the most suitable type of synthetic detergent for a certain application. He wishes to check the types available, manufacturers and price. These are selected from the file by simply needling out the chemical class, alkyl aryl sulphomates, under "chemical constitution" and studying the data presented.

THE card file system shown in the illustration contains over five hundred and fifty 5 x 8 inch keysort cards with single holes punched around the entire circumference. Each card, as far as possible, refers to a single individual trade name. Three basic classifications are coded into each card (1) a serial number, (2) the name of the manufacturer and (3) the first three letters of the trade name. How this is done is best illustrated by an example.

The file card on "Daxad No. 23" is shown below. Its serial number 282 is shown in the upper right corner. The code space for the number is directly above. The "2" is punched out of the hundreds column, the "7" and "1" (to represent "8") in the tens column and finally the "2" in the units to represent the complete number 282. It will be noted that each group of numbers, 1, 2, 4 and 7 can be made to represent any number from 1 to 9 inclusive by combining where necessary. Zero is obtained by leaving the group blank. Thus, any number from 1-999 may be obtained in the above space. To sort out any card from the group, a "tumbler" or needle is used. For example to obtain card 282 above, several hundred cards are grasped in one hand, and the needle inserted through the 2 of the hundreds column. A slight side twist of the needle fans out the cards and all those remaining on the needle are discarded. This is repeated with the balance of the file. The slotted "twos" are combined and needled in the "one" position of the hundreds column to eliminate all the 300 series. The group is conveniently small now, and is needled for the "7" and the "1" in the tens column and for "2" in the units. The desired card is selected from the group of four dropping, since it is easier to do this than actually needle out the 283, 286 and 289 which would also be present. The time taken to do this by one with some skill, is claimed to be less than a minute.

The manufacturer's code is on the top left hand side of the card. The eighty-two companies represented in the list are given numbers. Dewey & Almy, Chem. Co. in the example is number 24, coded by punching out the "2" of the tens column and the "4" of the units. By needling these cards in reverse order as described above, all the Dewey and Almy cards can conveniently be dropped out. Likewise those of any other company may be selected, no matter in what system the file is being kept at the time.

The "Trade Name" code is at the bottom of left card. In the example "Daxad," the 1st letter D is number "4" in the alphabet (printed out in full on each card for convenience). The "4" in the units column under the 1st letter is therefore punched out. The second letter "A" is No. 1 which is the "1" in the units column of the 2nd letter. The third letter "X" is No. 24 in the alphabet and is formed by punching out the "2" in the tens column and the "4" in the units. As described above, any trade name product or group, can be sorted out in exactly the same way described under the numerical code sort.

THE value of these codes does not lie in the ability to select odd cards, but rather in the ease with which the whole file may be placed in sequence. For example, if the numerical code is needled for each hole in order from right to left, beginning with the "1" in the units column, and the

dropped out cards are placed in sequence to the rear, the final result will be the setting-up of the complete file in numerical code order. With a little practice a file clerk or stenographer can achieve considerable facility in this. The file may similarly be put in sequence by manufacturer. By the simple expedient of needling the 1st letter group under the trade name, an alphabetical sequence is obtained. If the file is to be kept in such sequence for general purposes, then regular 5 x 8 inch alphabetical index cards may be inserted. Five additional codings are given covering generally available information on type—(anionic, nonionic, cationic); form—(solid, liquid, paste); principal use—(detergent, emulsifier, wetting agent, penetrant, dispersant, lubricant, germicide); per cent active and chemical constitution (9 classes). Information on surface tension, solubility, pH, stability, uses, etc. is given under "Remarks," as available.

Special attention may be given to the comparison of compounds of the same general class and the cross referencing of similar compounds of other manufacturers. Products recently discontinued may be included for completeness plus certain data on special soaps and on bases available for sulfonation to detergents. Price can be given a special heading.

ADDITIONAL code numbers can be set up for a particular use. For example, a textile manufacturer may assign the number twenty-five to all products mentioned for use in his special field. By having his secretary punch out "25" from all new cards made up or received, the manufacturer has, at all times, an up-to-date file on his special interest.

The maintenance of the file with the latest information appears to be a very important feature in this fast changing field. Hardly a day passes that some new compound is not being introduced or taken off the market. Mr. McCutcheon informs us that since he put his system on the market in November, he already has thirty-one additional cards to add, ten to be discontinued and over fifty modified through inclusion of additional information, price changes, etc.

MANUFACTURER'S CODE	PRINCIPAL USES	FORM	TYPE	NUMERICAL INDEX	UNIT
(1) DAXAD # 23 (2) Dewey & Almy Chem. Co. (3) MFG. BY: (4) TYPE: Solid, powder, brown. (5) FORM:	(6) PRINCIPAL USES: Dispersing (7) ACTIVE: Sod. salt of polymerized substituted benzoic alkyl sulfonic acid (alkyl long chain) (8) PRICE:	(9) CARO # 282 (10) REMARKS: Compare with Darvan #2 (code 279). Useful for stabilizing emulsions where the particle size is ground below 1 micron. Also gives stability against freezing, thawing, boiling and against the addition of mild acids and alkalis. Dispersing agent for paper, textile, mining industry.			

THIS INFORMATION PROVIDED BY THIS CARD IS SUBJECT TO THE BEST KNOWLEDGE OF THE WRITER.
 NOT TO BE REPRODUCED OR IN ANY MANNER WITHOUT THE WRITER'S PERMISSION.

131

JOHN W. MCCUTCHEON
 CONSULTING CHEMIST
 405 5TH AVENUE
 NEW YORK, N. Y.

The Coconut Oil Market

By John R. Skeen

Market Research Department
Foster D. Snell, Inc.

NEARLY 60 per cent of the total factory production of the quick-lathering, hard oils of the lauric acid type was consumed in soap production during the period 1936-39. This share increased to 72 per cent in the war years (1942-45) and since then has nearly returned to normal.

The economic importance of coconut oil far exceeds that of the babassu and palm kernel oils. In pre-war years, factory production of coconut oil amounted to 85 per cent of the total for the group. Until 1947 there was little variation from this figure.

Coconut oil was supplied in the form of copra for crushing or as oil imports to the annual amount of 630 million pounds during 1936-39. Of the total imported supply, 56 per cent was brought in as oil and the rest in the

form of copra. The Japanese invasion reduced total imports supply to 169 million pounds of oil equivalent during 1942-1945. Of the domestic consumption, 75 per cent was crushed from copra in stock or imported.

In order to mitigate the shortage difficulties since 1942, the International Emergency Food Council (U.N.) was given allocation authority over the supply. While IEFEC controls distribution to nations, price is left to find its own level.

The Philippines and the Dutch East Indies have been the great sources in the past. The war severed this supply and, in addition, thoroughly disrupted the growers and destroyed many of the crushing mills. It was expected that three to five years would be required to re-establish pre-war production levels. This appears to be true for the Dutch. The Philippines, however,

exported 666,000 short tons of copra in 1946. The anticipated total for 1947 is placed at over 800,000 tons. These values compare with the annual Philippine exports during 1936-39 of 650,000 tons of copra equivalent (oil and oil exported as copra). The recovery of the Philippine industry has been remarkable. The restoration of crushing mills has not been so rapid, however. Production of the crude oil for consumption in the Philippines and for export is not expected to exceed 220,000,000 pounds in 1947.

Dutch production of copra in 1947 is expected to amount to about 23 per cent of the world supply. The Philippines dominate the post-war coconut oil situation. Of the total exported from the Philippines in 1946, IEFEC allocated 70 per cent to the United States. This was crushed in the
(Turn to Page 85)

Lauric Acid Oils

Factory Consumption ¹ (million pounds)					Consumed in Soap ² (per cent)				Coconut Oil (million pounds)							Oil and Copra Imports ⁵	Price ¢/lb ⁶
Total	Coconut	Babassu	Palm Kernel		Total	Coconut	Babassu	Palm Kernel	Apparent Factory Disappearance ³	Pre- Change in Stocks ⁴	Imports ⁴	Exports ⁴					
1936	684	622	(ca) 20	42	50	50	45	63	631	258	-69	322	18			550	5.3
7	626	454	33	139	60	56	43	80	487	267	108	337	9			675	6.3
8	659	578	30	51	58	59	28	58	608	287	36	364	7			685	3.4
9	663	588	67	8	65	66	56	46	608	273	-24	337	25			600	3.4
40	666	600	59	7	66	66	70	3	598	347	+65	371	53			765	3.0
1	770	718	42	10	67	67	71	11	726	318	-64	405	54			770	6.4
2	222	199	22	1	(ca) 77	(ca) 71	(ca) 90	(ca) 100	202	111	-44	43	5			130	8.5
3	221	194	26	1	78	75	100	100	196	143	11	43	0			190	8.4
4	219	204	13	2	74	66	100	87	203	128	-25	52	0			170	8.4
5	220	152	34	34	57	40	98	92	159	151	+26	34	0			185	8.4
6	394	326	42	26	63	58	87	76	336	349	-33	2	48			500	10.1
1947																(ca) 810	
1Q	203 ⁷	201	2	0	60	60	75	100	165	206	25	8.5	20.6 ⁷				22
2Q	208 ⁷	204	4	0	63	63	90	100	182	209	19	8.4	14.0 ⁷				17
3Q	212 ⁷	204	8	0					199	163	-46						13.5

¹ 1947: *Facts for Industry*, Series M17-1; 1941-1946: *ibid*, Series M17-7; 1936-1940: *Animal & Vegetable Fats & Oils* (Census); crude only.

² % of Factory Consumption; unit values from *Animal & Vegetable Fats & Oils* (supra); represents total consumption of crude, and refined as converted to crude.

³ from Department of Agriculture except 1936-7.

⁴ *Foreign Commerce & Navigation*; exports include refined corrected to crude; imports are crude for consumption only.

⁵ *Fats & Oils*, industry reports, Department of Commerce; values "rounded."

⁶ 1936-1946 prices are from B.L.S. quoting Manila coconut crude, tanks, c.l., f.o.b., N. Y.; the value for 1946 is unofficial; 1947 prices are from O.P.D.R. for Ceylon type, tanks, f.o.b., N. Y.—these averages are from "spotty" quotations; B.L.S. does not quote for 1947.

⁷ crude only.

⁸ *Fats & Oils* (supra).

Free Alkali in Soaps

A German colloid chemist offers his views on residual free alkali in soap.

By Dr. T. Ruemele

THE amount of free caustic alkalinity that should be allowed to remain in a soap depends upon the use for which the product is intended. The presence of traces of caustic alkali up to 0.1 per cent in a freshly boiled soap helps to prevent rancidity and break down. In attempting to force the elimination of free caustic alkali from soap, other chemicals may be introduced that produce unexpectedly adverse influences and actions on the soap.

Soap loses more than one half of its free caustic alkalinity during drying, therefore we must not view too critically the presence of free alkali in toilet soaps. Since carbonic acid will help to absorb the alkali, there is no reason to eliminate the caustic alkali beforehand. Then too, free alkali produced by hydrolysis when the soap is dissolved in water surpasses to a great degree the maximum amount of caustic alkalinity generally looked upon as satisfactory.

Opinions are varied regarding the most favorable pH value for washing. Some authorities are convinced that the pH value must be between 10.5 and 12, preferably between 11 and 11.5. The pH value of a neutral soap solution is only about 10, and increases to 11 and 11.5 as alkali is added. Moreover, the choice of the alkali affects the quantity to be employed to achieve the necessary degree of alkalinity.

Far less sodium hydroxide is necessary than sodium carbonate, silicate or phosphate. The detergency of a 0.25% soap solution is strongest when the alkalinity of the solution is

at a pH of 9.66. The addition of chloride, sulfate or phosphate to soap solutions of most favorable pH values will at first increase and then diminish their detergent power. The action of the added salt is approximately proportional to its anionic valency. Sodium borate and acetate do not influence the detergency of soaps. The pH value of a 0.5% aqueous toilet soap solution at 20°C. is about 9.4, whereas the pH of a non-hydrolyzed toilet soap under the same conditions is 7. The acid reaction of the skin's surface creates a pH of about 5.8 at the surface. Immediately after washing with a non-hydrolyzing soap and rinsing, the skin shows a pH of 7, but it has a far higher pH value when washed with a hydrolyzing toilet soap, even after complete rinsing. A soap that does not hydrolyze to produce free alkalinity is recommended for people who must wash frequently and for those who have skins unusually sensitive to alkali.

The alkalis are most effective at the following concentrations:

	Per Cent
Sodium hydroxide.....	0.008
Sodium carbonate.....	0.026
Sodium metasilicate.....	0.052
Sodium phosphate (tribasic)	0.06

If we examine the most popular soap powders, we will learn that they are high in alkaline salt content for traces of caustic alkali are quite evident. General purpose cleaners act as though they contain about 3% sodium hydroxide. A first class toilet soap must not contain over 0.2% sodium carbonate (calculated as Na_2O). Considering the high quality of caustic alkali used for soap manu-

facture, the amount of carbonate present in the lye employed for saponification is sure to be less than 0.2 per cent. However, a certain build up of carbonate takes place during manufacture of the soap and during cleaning. If 0.1% caustic alkali (on a Na_2O basis) remains in soap, most of it will finally revert to the carbonate. The above recommended minimum limitation of 0.026% carbonate should be applied to bath soaps; however the presence of quantities of sodium carbonate up to about 0.5% is not significant for laundry and household soaps.

It is not correct to derive an evaluation of quality based on the determination of the free alkali content of a soap. Various research workers have demonstrated that the quantities of alkali resulting from soap hydrolysis are significantly greater than those normally present in soaps. The usefulness of adding basic electrolytes to soap has been well emphasized during the period of fats and oils deficiency, but it was recognized scientifically at a much earlier period. In testing the hydroxyl ion concentration of various neutral soap solutions mixed with certain quantities of free alkali, we arrive at the conclusion that the alkalinity of aqueous soap solutions will be more strongly influenced by the composition of the soap fats, concentration and temperature of the solution, than by the addition of fractional percentages of free caustic alkali. Even as much as 1 per cent free alkali increases the alkalinity of the sodium salts of coconut fatty acids only from

a pH of 8.65 to 8.85, whereas neutral olive oil and tallow soaps have a pH of 8.95 and 9.95. A sodium palmitate solution of pH of 8.85 has a pH of 9.05 upon the addition of 1% free alkali. This alkalinity value is lower than that of neutral sodium or potassium stearate and equal to a potash tallow soap mixed with 0.2% free alkali. Further tests with the hydrolysis alkalinity of sodium and potassium palmitate at 90°C. show that in 0.01 normal solution—equal to 0.3% soap—6.6 to 6.8% hydrolysis results. In the case of hydrolysis of commercial soaps of sodium salts of fatty acids and rosin acids in various concentrations, tests show that in concentrations of sodium oleate varying from 0.6 to 0.3 and 0.06%, 3.7, 6.6, and 28.1% respectively are hydrolyzed. We arrive then at a degree of hydrolysis of from 8 to 15% for the concentrations of 0.125 and 0.250% soap usually employed in normal washing. The acid components present in the wash water, however, always favor further hydrolysis and produce new free hydroxyl ions.

THE alkalinity of borax causes considerable apprehension regarding its application as a soap additive. However, its good buffering property makes it worth the consideration of soap and shampoo manufacturers. A considerable quantity of 5% soap solution may be dissolved in a 0.5% borax solution and the pH value will remain at about 8.9. Sodium salts of the esters of sulfuric acid and high molecular weight fatty acids produce free alkali by hydrolysis during washing. Triethanolamine soaps are actually alkaline soaps also because triethanolamine is an organic alkali, and it has favorable dermatological properties. We define as alkali-free soaps, only such soaps as those the hydrolysis of which may be reduced by a neutralizing component such as dilute hydrochloric acid, borax, etc.

The neutralizing of such soaps in connection with their simultaneous bleaching may be effected by the addition of boric acid, mammitol, tartaric or citric acid to the warm liquid or solid soap. It is believed that boric acid does not remain inactive in the

soap but acts upon the free alkali. Small quantities of free alkali do not readily change the pH value of soaps, because soaps are strong buffers.

Testing the dialysis property of the potassium salts of the various fatty acids and fatty alcohol sulfonates, we find the following results: The dilute solutions of potash soap of saturated high molecular fatty acids show by continuous exhaustive dialysis the property to diffuse through a semi-permeable membrane. The diffusion increases with decreasing molecular weight. In the case of lauric acid the whole soap molecule diffuses, but this is not so with myristic acid. Thereby $\frac{1}{2}$ of the employed amount is diffused as a complete soap molecule with 80% of alkali belonging to the non-dialysing part. In the case of palmitic and stearic acid only 3% of the employed quantity but 70% of the alkali is diffused. The double bond and the hydroxyl groups in the fatty acid cause favorable dialysis properties, showing an inverse relationship to the hydrolysis. The decrease in molecular size is measurable by the increase of the dialysis property and runs parallel to the dermatological irritation phenomena. If the dialysis property is reduced to values associated with dilute soap solutions of lower molecular weight fatty acids and with unsaturated and hydrolyzed fatty acids, we find increased surface activity and detergency.

Opinion exists that alkali from the hydrolysis of soaps is responsible for disagreeable irritation phenomena. However, those soaps which are dermatologically useless show the least hydrolysis. Therefore free alkali resulting from hydrolysis cannot be the cause of the irritation. The strength of the dialysis property of soaps and detergents, or perhaps more pertinently the properties intrinsic with this quality, such as condition of solution, surface activity and detergency are responsible factors for this situation.

Hand and machine washing methods as used in the average home were applied in laundering rayon in order to determine the effect on tensile strength and efficiency in removal of soil. The fabrics tested were cellu-

lose acetate satin, cellulose acetate taffeta, viscose spun slub crepe, viscose taffeta, and cuprammonium crepe. Each of these types of rayon was given two series of 50 machine washings and two series of 50 hand washings. Zeolite softened water was used at 100-105° F. with 0.2 per cent of neutral soap solution. Test pieces of each fabric were washed in the following manner: (1) Hand washing, hand squeezing, towel rolling; (2) Hand washing, and hand wringing; (3) Machine washing and hand wringing; and (4) Soaking, machine washing, and machine wringing.

No one of the laundry methods used produced significantly greater tensile-strength loss as compared with the other methods. Repeated washing, however, did cause a slight decrease in tensile strength. The results of the study indicate that present-day rayon fabrics will withstand more vigorous laundry procedures than are now recommended. The harshest of the four home methods tested, which consisted of soaking, machine washing, and machine wringing, produced no greater degradation than did any of the other three methods, and proved to be the most efficient in soil removal.

It would therefore seem that for most complete soil removal, and ease and speed of laundering, white rayon fabrics similar to those studied may be machine-washed after a preliminary period of soaking. Soaking is not advised for colored rayons, but otherwise they may be laundered in the same manner. M. H. Graydon, D. M. Lindsley, and J. B. Brodie, *Am. Dyestuff Reporter* 36, 397-9 (1947).

Kenaf oil is obtained from the seeds of *Hibiscus cannabinus* L., a plant native to India. The procedure for extracting the oil is practically the same as is used in extracting cottonseed oil. Up to 20 per cent oil of the weight of the seed may be obtained, depending on the extraction method used. Generally speaking, the oil has the same uses as cottonseed oil which it may substitute, with the advantage of having a somewhat milder odor. M. Lewy, *J. Am. Oil Chemists' Soc.* 24, 3-5 (1947).



ANNOUNCEMENT

We take pleasure in announcing to the industry that we have been appointed sole agents in the United States and Canada for

Payan & Bertrand, s. a.
Grasse, France

This well known firm, established in 1854, is one of the world's foremost producers of the highest quality natural aromatic raw materials. As their agents, we are proud to offer to the American market an internationally renowned line of

Floral Essences and Essential Oils
Absolutes • Concretes • Balsams • Resins

gunning and gunning inc.

601 WEST 26th STREET, NEW YORK 1, N. Y.

Manufacturers of
Aromatic Chemicals, Essential Oils and Perfume Compounds

Colbert Joins Tern

Irving Colbert has joined Tern, Inc., New York, manufacturer of "Tern," a liquid wool-washing compound, as chemist in charge of research and production. Formerly Mr. Colbert was associated with the research laboratories of New York University and Publiker Industries, Inc., Philadelphia. He has spent several years as an investigator at the Marine Biological Laboratories, Woods Hole, Mass.

Canada Soap Prices to Rise

Canadian soap makers expect prices of soaps of all kinds to advance sharply early this year, when the Dominion government abandons its fats subsidy, along with price control. Prices of soaps may jump on an average of around 20%. Manufacturers do not expect their quota of fats to be increased above the present 88% of average use in 1940-41. The only difference is that some soapmakers will be a little freer now and maybe more successful in bidding for and securing their quota supply. Up to now, being eligible for a certain supply of fats and actually receiving delivery of it have been two vastly different things, according to the Canadian soapers.

New P&G Warehouse

Procter & Gamble Manufacturing Co., Kansas City, has leased for warehouse purposes a building at 1400 Guinott Ave., Kansas City, Mo. The building, containing 155,000 square feet of space, is part two story and part six story, and was formerly occupied by Continental Can Co.

Colgate C.E.D. Trustee

S. Bayard Colgate, board chairman of Colgate-Palmolive-Peet Co., Jersey City, has been elected a trustee of the Committee for Economic Development.

Breck Appoints Roeder

W. Vance Roeder was recently appointed district manager and director of the newly-opened New York



W. V. ROEDER

City sales office of John H. Breck, Inc., Springfield, Mass., manufacturers of soaps and shampoos. As formerly, he will continue to direct department and drug store sales and sales promotion in the metropolitan area.

New AASGP Services

In 1948 a number of new direct services to members will be undertaken by the Association of American Soap and Glycerine Producers, Inc., New York. These include a statistical service (for members paying not less than \$25 in annual dues); a service on purchases; several new types of bulletins; and additional services to be announced at a later date.

Women Do the Soap Buying

Women influence 84 per cent of the sales of more than 175 commodities according to a report by the Marketing division of Hearst Magazine, Inc. The tabulated results indicate that women influence 98 per cent of total sales of laundry supplies, also 98 per cent of laundry soaps and 95 per cent of toilet soaps.

Gillam Expands

Gillam Soap Works, Fort Worth, Texas, has announced a \$250,000 expansion program expected to double the firm's capacity. Included in the expansion are new storage tanks for raw materials, boiling kettles, elevator, boiler and a new warehouse.

U. S. Seizes Stamford Co.

The stock of P. Beiersdorf & Co. Stamford, Conn., was seized late in December by the Government as property owned in the United States by Beiersdorf, A. G., Hamburg, Germany. P. Beiersdorf & Co. is a holding company for patents and trademarks formerly owned by the Hamburg corporation with trademarks covering various drug products including "Nivea" skin creams and soaps. The corporation has assets of \$233,000.

The interest of the German concern in the Stamford company has been cloaked by fictitious sale to a Swiss citizen, according to Government charges.

Honor Deupree, Luckman

Richard R. Deupree, president of Procter & Gamble Co., Cincinnati, and Charles Luckman, president of Lever Brothers Co., Cambridge, Mass., were among those cited recently by *Forbes Magazine of Business* as "Today's Fifty Foremost Business Leaders."

Keough Elected

A. E. Keough, sales manager, MOBO division, John T. Stanley Co., New York, was recently elected president of the Motor Equipment Manufacturers Association, New York.

Charles Finnegan Dies

Charles A. Finnegan, 76, former owner of Lautz Soap Company, Buffalo, died at his home recently after an illness of several years. He retired about 12 years ago.

Wyandotte Adds Three

Marvin S. Carr and Russell A. Kaberg have recently been added to the staff of the development depart-

E. I. duPont de Nemours & Co., Niagara Falls. Prior to joining Wyandotte Chemicals, Mr. Kaberg was a member of the development depart-



PAUL WELLER



RUSSELL KABERG



MARVIN CARR

ment, Wyandotte Chemicals Corp., Wyandotte, Mich., and Paul Weller has been appointed director of Market Research. Dr. Carr will serve as assistant to the director of development, Joseph J. Schaefer. Mr. Kaberg will be a field representative in connection with various organic chemicals. Dr. Carr was formerly a research and development engineer of the Electrochemical Department of

ment of Monsanto's Organic Division, and a rayon chemist at the duPont Grasselli Chemicals Department Experiment Station.

Mr. Weller succeeds Melvin E. Clark, now one of the company's sales managers. Mr. Weller has directed market research activities since last March and expects to expand these facilities to include several new phases.

Western Chemical Fined

Western Chemical and Manufacturing Company, Los Angeles soap manufacturers, were recently fined \$2,800 for violation of OPA regulations in the use of fats and oils. It was contended that the company used approximately 468,000 pounds of fats and oils in excess of its quota between April 1, 1945, and October 1, 1946.

Perfumers' January Meeting

The American Society of Perfumers, New York, is holding its annual meeting and election of officers January 21, 1948, at the Advertising Club, New York, according to an announcement by William H. Barlow, Orbis Products Corp., and secretary of the Society.

At the December 17th meeting of the Society, Dr. Ernest Guenther, vice-president of Fritzsche Brothers, New York, discussed the production of essential oils in the Western Hemisphere. His talk was illustrated with colored movie films taken on his numerous trips through Central America, the West Indies, Mexico, South America and the United States.

William Dunney, Sr., president of Ungerer & Co., New York, and the society's president, reviewed the organization's activities during the year and its significance to the industry.

Award To Hammond Plant

Lever Bros. Co.'s Hammond, Ind., plant was one of 32 winners of awards in the 37th semi-annual interplant accident prevention contest sponsored by the Greater Chicago Safety Council. Among the 137 industrial plants participating in the contest, the average frequency rate was 8.3 accidents for each million man-hours worked.

Discuss Drug & Cos Act

A discussion of the Federal Food, Drug and Cosmetic Act was to highlight the January 22nd meeting of the food, drug and cosmetic section, New York Bar Association, New York. Among the speakers at the meeting was to be S. L. Mayham, executive vice-president, Toilet Goods Association, New York, discussing the impact of the cosmetic law on the Federal Food, Drug and Cosmetic Act.

Fat Export Quotas Cut

First quarter 1948 fats and oils export quotas were cut some 58.8 million pounds from last year's figure, according to a report issued in early December by the U. S. Department of Agriculture, Washington. A total of 87 million pounds of fats and oils was allocated for Jan.-Mar. 1948, which is a considerable drop in quota from 452 million figure announced early in October by the department as the intended allocation for the fourth quarter of 1947. The new allocation consists of 63.8 million pounds of fats and oils for commercial shipment and 23.2 million pounds of shelled peanuts on an oil content basis to be supplied by Commodity Credit Corp. The commercial shipments include 34.5 million pounds of lard, 2.2 million pounds of margarin, 12.7 million pounds of shortening and other edible oils, 300,000 pounds of drying oils, 8.1 million pounds of other inedible fats and oils, and 6 million pounds of soap. Supplies of other fats and oils will be available from the unshipped balance of 120 million pounds of fats and oils allocated for the fourth quarter of 1947.

Buys Seventeen & Jeurelle

Seventeen, Inc., former subsidiary company of Jeurelle, Inc., announces the purchase from Emerson Drug Company, New York, of the assets of Jeurelle, Inc. including Seventeen, Inc. In the future, manufacturing and distributing of the Seventeen line of cosmetics will be done under the name of Seventeen, Inc. The company will operate from their offices in the RKO Building, Rockefeller Center, New York.

Linberg Re-elected

George O. Linberg, sales manager of the textile chemicals department, Monsanto Chemical Company, St. Louis, was re-elected chairman of the northern New England section, American Association of Textile Chemists and Colorists, at the recent meeting of the group in Boston. Jay Harris, of Monsanto's central research laboratories, Dayton, Ohio, was the principal speaker of the meeting. The subject of his address was "Builders is Detergents."

Soap Association Meeting in New York, Jan. 28-29

DEPARTING from its customary one-day meeting of past years, the American Association of Soap & Glycerine Producers, New York, is

with the Magazine Bureau, Periodical Publishers Association as host.

The meeting on Thursday morning will take the nature of group

Oils Outlook" will include Fred J. Rossiter, Office of Foreign Agricultural Relations, USDA; Charles E. Lund, U. S. Department of Commerce; and George C. Prichard, Fats and Oils Branch, USDA. J. Frank Perrin, Office of Defense Transportation, will speak on "Transportation in 1948," and a panel on "Synthetic Detergents in 1948" will be led by



George Wrisley

Soap Association president



James Reilly

in charge of convention



Dr. Morris Fishbein

Topic: "A Clean America"

holding a convention this year in New York that will extend two days.

George B. Wrisley, Allen B. Wrisley Co., Chicago, president of the association, will open the meeting at 9:45 A. M. Wednesday Jan. 28th. The second speaker will be Leo M. Cherne, executive secretary, Research Institute of America, who will discuss the general business outlook in 1948. After this will be an important new proposal for action presented by the association.

A highlight of the first day's meeting will be a luncheon address, "A Clean America" by Dr. Morris Fishbein, editor of the *Journal of the American Medical Society*.

The afternoon session will have two features. The speaker for the first feature "Government Regulations Affecting our Industry" had not been determined at press time. The second feature will be "New Steps Forward," an explanation and discussion of the association's program for 1948. Election of association directors will take place during the afternoon. There will be a get-together with refreshments at 5:30

programs. The group program on bulk chips, flakes and powders will feature: "Soap and the Commercial Laundering Industry," G. H. Johnson, American Institute of Laundering; "New Developments in Textile Soap and Detergent Uses," Dr. Anthony M. Schwartz, Harris Research Laboratories; "Wet Cleaning in the Dry Cleaning Industry," George Fulton, National Institute of Cleaning and Dyeing, Washington and round table discussions on any subject of interest to those present. The group program on glycerine is being arranged by N. N. Dalton, association consultant and chairman of its glycerine research committee. The group program on potash soaps will feature a program of interest to potash soap makers and a program is being arranged on wrapper and package design for sales appeal.

The speaker for the lunch period of the second day, Thursday, will be Paul V. McNutt, former ambassador to the Philippines, who will discuss "The Philippines."

That afternoon there will be four features. A panel on "Fats and

Kenneth T. King, E. I. duPont de Nemours & Co., Wilmington. The formal part of the meeting will be concluded by an address titled "Our Association and You in 1948" given by the new president of the association. That evening, at the banquet, there will be an address by a member of President Truman's cabinet and entertainment by stars of the radio and entertainment world including Paul Whiteman and his orchestra.

AOCS Meeting Dates

The 39th annual meeting of the American Oil Chemists' Society will be held on May 4-6, 1948 in New Orleans. The society's annual fall meeting will be held in New York on November 15-17. Foster D. Snell is general chairman of the fall meeting.

Joins C-P-P Staff

Dr. W. Ramsey Christian recently joined the research and development department, Colgate-Palmolive-Peet Co., Jersey City. He was formerly a member of the department of pharmacology and experimental therapeutics of Johns Hopkins.



A Sparkling Floral Trio

Velvetine will impart sparkle and brilliance to most any blend, adding a touch of charm and distinction without changing its general characteristics. *Iso Cyclo Citral-S* imparts a genuine lush green note. Its clean, refreshing odor makes it the perfect masking agent. *C-66* lends an appealing crispness wherever *Lily-of-the-Valley* is an impor-

tant constituent. Its *Muguet* character is considerably more intensive than *Hydroxy Citronellal*, and produces very interesting effects. ◇ These three new specialties enhance the finest perfumes, yet are well within reach of the soap perfumer. ◇ A request on your company letterhead will bring working samples and complete information.

50th Anniversary 1897-1947



Aromatics

INDISPENSABLE TO THE CREATIVE PERFUMER

THE DOW CHEMICAL COMPANY • MIDLAND, MICHIGAN

Potash Soap Association Meets in New York

MEMBERS of the Potash Soap Association will meet for a one day session, January 27th, at the Biltmore Hotel, New York, to discuss

Washington, will review the legislative situation as it affects the fats and oils industry particularly with reference to coconut oil. George L. Prich-



Herbert H. Kranich
P.S.A. President

the various problems confronting the industry. One feature of the program will be an "Information Please" session at which a number of panels of experts on various topics will discuss and answer questions on supply and technical problems relating to raw materials consumed in the manufacture of soaps and synthetic detergents. These include fats and oils, alkaline salts, perfumes, filters and other equipment as well as bottles, drums and other types of containers.

Unique features of the meeting will be addresses by Drs. Louis and Anthony M. Schwartz, father and son. The elder Dr. Schwartz, who recently retired as medical director U. S. Public Health Service, and Chief, Office of Dermatology, Industrial Hygiene Division, U. S. P. H. S., to take up consulting work, will speak on dermatological aspects of soaps, synthetic detergents and other surface active agents. His son, Dr. Anthony Schwartz, Harris Research Laboratories, Washington, D. C., will speak on synthetic detergents. John B. Gordon, Bureau of Raw Materials, American Vegetable Oils and Fats Industries,



George L. Prichard
to discuss fat outlook

ard, director of fats and oils branch, Production and Marketing Administration, USDA, will talk on the world and domestic fats and oils situation and the impact of the European relief program on domestic supplies. He is also expected to forecast what type of controls may be necessary and the conditions that would have to exist before such controls would be applied. Points regarding imports and price influences will be touched upon. Edgar L. Burtis, agricultural economic statistician, Bureau of Agricultural Economics, USDA, will be on the fats and oils panel to help answer questions on economic factors.

On the technical side, will be a paper, with slides, on the newer types of fatty acids, their manufacture, composition and utility, by Dr. Robert S. Brown, Emery Industries, Inc., Cincinnati; and a paper on new organic wetting and sequestering agents by H. W. Zussman, Alrose Chemical Co., Providence, R. I.

Election of new members to the board of directors and new officers for 1948 will take place at this meeting. There will be a get-together

cocktail party at the Biltmore Hotel the night before the meeting. Other social features will be a luncheon and buffet supper preceded by a cocktail party.

A new name for the association recently approved by its members, is "Soap & Detergent Manufacturers Association". The new name is felt to be more descriptive of the broader membership coverage and activities of the organization.

Lux Back in Britain

Lever Bros., Ltd., announced in December the resumption of production and distribution in Britain of their soap flakes product, "Lux," which has been absent from the British market for the past four years.

N. Y. BIMS Reorganize

BIMS of New York recently announced that it has completed reorganization and that a new general committee has taken charge of the organization as of January 1, 1948. Members of the new general committee are: A. H. Bergmann, Oxzyn Sales Co., A. C. Burgund, Carr-Lowrey Glass Co.; S. H. Corkran, E. N. Rowell Co.—A. H. Wirz, Inc.; C. W. Darr; Paul A. Dunkel, Paul A. Dunkel & Co.; J. A. Ewald, Allied Products, Inc.; P. L. Forsman, C. H. Forsman Co., chairman of executive committee; I. S. Goodwin, Yardley & Co.; F. J. Lueders, George Lueders & Co.; K. L. Patterson, Stanco, Inc.; W. K. Sheffield, New England Collapsible Tube Co.; M. F. Schultes, Hewitt Soap Co., member of executive committee and general chairman; S. L. Mayham, The Toilet Goods Association, member of executive committee and treasurer; H. G. Griffiths, Pennsylvania Drug Co.; and J. A. Leyden, Hampden Glazed Paper and Card Co. The last two mentioned are also members of the executive committee.

Bramston-Cook Advanced

Oronite Chemical Company, Los Angeles, has announced the appointment of H. E. Bramston-Cook to the newly-created position of general manager, eastern operations.

SYNTHETIC DETERGENTS

R N - WATER SOFTENER A

PROPERTIES

Clear, colorless, odorless aqueous solution (density—1.21).

COMPOSITION

An aromatic polyaminocarboxylic acid salt.

USES

When used in combination with fatty acid soaps and certain synthetic detergents this organic type lime soap dispersant and solubilizer enhances foaming and detergency properties, inhibits flocculation in hard water and improves rinsing. Many types of liquid shampoos and various concentrated soap solutions are clarified on addition of this product.

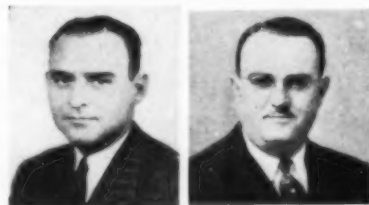
RICHES-NELSON, INC.
Chemicals and Allied Products



342 MADISON AVENUE · NEW YORK 17, N. Y.

Advances at Detrex

W. F. Newbery, formerly industrial sales manager, has been appointed assistant director of sales of



W. F. NEWBERY LEROY CAMEL

Detrex Corporation, Detroit. Reporting to Mr. Newbery will be LeRoy Camel, the new sales manager of the industrial products division of Detrex, which includes metal cleaning equipment and chemicals.

WH&C Expands Sales Force

Welch, Holme & Clark Co., New York, recently announced the addition of James Howard and Eugene V. Dupuis to their sales force. Mr. Howard was formerly a field sales engineer for Electronics, Inc., and one-time Royal Air Force chief pilot officer. Mr. Dupuis was formerly a member of the sales force of Adam Cook's Sons, Inc.

Philippine Trade Mark Law

All concerns trading in the Philippine Islands will be interested in the new Philippine Trade Mark Law, which became effective September 18, 1947. The old Philippine Trade Mark Law is entirely repealed and superseded by the new statute, however rights obtained under the old registrations are preserved under certain conditions.

Hold Sales Meeting

The annual sales convention of Cleaning Materials and Chemicals Co., Pittsburgh, was held January 15th, 16th and 17th, 1948, at the Hotel Schenley, Pittsburgh. Sales managers of Allen B. Wrisley Co., Chicago; Atlas Floorsurfacing Machinery Corp., Colgate-Palmolive-Peet Co., Jersey City; Diamond Alkali Co., Pittsburgh; Doyle Vacuum Cleaner Co., Grand Rapids, Mich.; Hunnewell Soap Co., Cincinnati; Laundry Products Co., Brooklyn; Procter and Gamble Distributing Co., Cincinnati; S. C. John-

son Co., Racine, Wis., and National Paper Products Co., discussed their products both from a technical and sales standpoint. The company has announced the inauguration of a new department to do location rug cleaning and is busy training personnel on new modern equipment for carrying out this work.

Rendering Plant Starts

Consumers Cooperative Association, Kansas City, Mo., began operations late in the fall in its newly-constructed rendering plant, located at Eagle Grove, Ia. Among by-products of the 36-million pound capacity plant will be two million lbs. of grease, produced annually. Use of steam-jacketed cookers and water-jet washing of odor-bearing vapors, with other ultra-modern methods and facilities, eliminate odors and improve product quality.

Trask to Open in Boston

Arthur C. Trask Co., Chicago manufacturers of sulfonated and processed oils, stearic acid, red oil, fish oils, waxes, and chemical specialties, will open an office in Boston around January 1st, 1948. The location of the Boston office has not yet been announced.

Monsanto Appoints Smith

The appointment of Tom K. Smith, Jr. as assistant branch manager of its phosphate division was announced Dec. 16th by Monsanto Chemical Company, St. Louis. Effective Jan. 1, 1948, Smith will be in charge of the Cincinnati branch of the division's Detroit office.

André Givaudan Returns

André Givaudan, a director of L. Givaudan & Cie, S. A., and its affiliated organizations, left in Decem-



ANDRÉ GIVAUDAN

ber for Switzerland after a brief business visit to the United States, his fourth to this country since the end of the war. Mr. Givaudan devoted his time here primarily to a study of the development program of Givaudan-Delawanna, Inc., New York affiliate of the Geneva company.

Covers Fatty Acid Odors

A recent development of the technical staff of Magnus, Mabee & Reynard, Inc., New York, is "Magnella MM&R," said to have the power of eliminating objectionable fatty acid odors from soap products. It is recommended in amounts of 0.5 to 1% in soap and sulfonated oil products.

Purex Expands

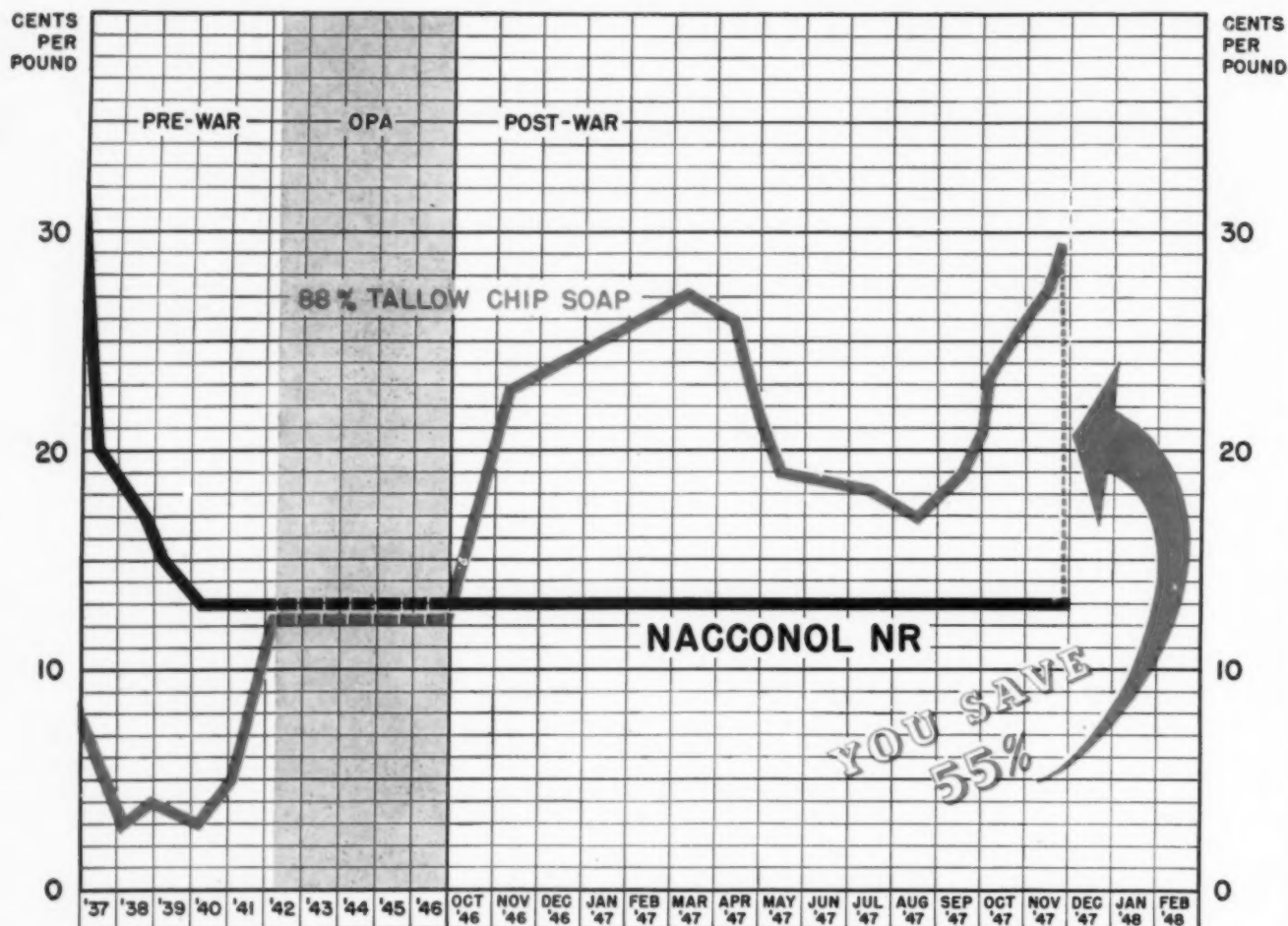
Purex Corp., Ltd., South Gate, Calif., is building a 42,000 square foot warehouse for handling its products.

Below is artist's sketch of the new plant of Kelite Products, Inc., Los Angeles. Situated on 7 acres near the City Hall, it is on the main line of the Union Pacific Railroad. The main building for manufacture of Kelite industrial chemicals contains 65,000 square feet. Products requiring packaging and the company's household cleaner, "Kenu" are put up in adjoining "Kenu" plant. Adjacent are two buildings housing Tivit Products Co., a subsidiary making "Tivit" steam cleaner, radiator flusher, car washer tanks and other cleaning equipment. In addition, a new plant in the Lincolnwood development in Chicago is now being built.



Pictures Speak Louder Than Words

COST COMPARISON - NACCONOL NR vs SOAP



* Reg. U.S. Pat. Off.

Adopt **NACCONOL NR**
and cut your soap costs

National Aniline

DIVISION • ALLIED CHEMICAL & DYE CORPORATION

40 RECTOR ST., NEW YORK 6, N. Y. • BOSTON • PROVIDENCE • PHILADELPHIA • CHICAGO • SAN FRANCISCO • PORTLAND, ORE.
GREENSBORO • CHARLOTTE • ATLANTA • NEW ORLEANS • CHATTANOOGA • TORONTO

Gunning Firm in 25th Year

Gunning & Gunning, Inc., New York manufacturers of aromatic chemicals, essential oils and perfume com-



NELSON A. GUNNING

pounds, are celebrating their 25th year of business. The firm started in 1922 and now operates its own plant in Newark, N. J. Nelson A. Gunning is president of the company.

Gunning & Gunning, Inc., were recently appointed sole agents in the United States and Canada for Payan and Bertrand, s.a., Grasse, France, producers of high quality natural aromatic raw materials, specializing in floral and essential oils, absolutes, concretes, balsams and resins.

D. & O. on West Coast

Dodge & Olcott, Inc., New York, recently announced the opening of a San Francisco office. The new office will be the headquarters of C. H. Bryson, sales representative for northern California, Oregon, Washington, and British Columbia.

Market Res. Group Meets

The Chemical Market Research Association is meeting at the Mayflower Hotel, Washington, January 22, 1948. A number of talks by government officials were scheduled, giving late information on market and production trends in the chemical industry. C. C. Concannon, chief of the chemical unit, Bureau of Foreign and Domestic Commerce, U. S. Department of Commerce, was to review production and marketing situations in the chemical industry

abroad, and to comment on observations made during his recent trip to European chemical centers. Robert Prather, Standard Oil Co. of Indiana, was to discuss methods of interpreting current figures and statistics on chemical markets. P. H. Groggins, USDA, was to review the part played by agriculture as a consumer and producer of chemicals. Frank Garfield, U. S. Federal Reserve Board, was to review the use and interpretation of Federal Reserve indices pertaining to the chemical industry.

Lehigh Buys Out Eavenson

Lehigh Chemical & Export Co., New York, has recently taken over the Eavenson Chemical Co., New York, and will continue to supply the soap and detergent industry with the wide range of synthetic detergent materials formerly sold by Eavenson. M. S. Eavenson, founder of Eavenson Chemical died suddenly last summer. According to C. B. Matsinger of Lehigh, their line of synthetic detergents will be expanded to include the Eavenson line so the company can offer a selection of materials to meet every requirement.

Lever Appoints Fitch

Edward H. Fitch has been appointed division sales manager of the San Francisco division of Lever Brothers Company, Cambridge, Mass, it was announced December 16, 1947. He replaces Frank B. Pigeon, who is retiring from active duty. Mr. Fitch was employed by Lever Brothers Company in 1929 as a manager of one of the couponing crews, and later became a salesman in the Philadelphia area. Subsequently, he was appointed general field supervisor of the Baltimore and Philadelphia sales divisions, and in January, 1946 he was promoted to the division sales management of the Syracuse division. Mr. Pigeon has been with Lever Brothers since the inception of their national sales organization in 1918. In 1919 he opened their Philadelphia division and remained there until 1933, when he was appointed San Francisco division sales manager and made responsible for Lever sales on the entire west coast.

Fischer 40 Yrs. With MM&R

William F. Fischer, sales manager of Magnus, Mabee & Reynard, New York, recently marked up his



WILLIAM F. FISCHER

40th year of service with that firm. No employee or company officer has been with MM&R longer than Mr. Fischer. Percy C. Magnus, president of the company, has two years less service than his sales manager. Mr. Fischer joined the company as an office and errand boy in 1907 when the firm was located at 257 Pearl Street in New York. He soon moved on to the laboratory, thence to the bookkeeping department and finally to a sales post in New England. After years of sales experience in the southwestern territory and in Canada, Mr. Fischer returned to the home office in 1929 as general sales manager.

MM&R Honors Fischer

Mr. Fischer was guest of honor at a dinner tendered to him by P. C. Magnus, president, at the Manhattan Club, New York, on January 5. The dinner was attended by 80 members of the MM&R executive and sales staffs and marked the end of a three-day company sales meeting. Joseph B. Magnus acted as toastmaster. The speakers included N. Y. City Commissioner of Police, Arthur Wallander, P. C. Magnus and Mr. Fischer. Mr. Magnus presented Mr. Fischer with an engraved wrist watch and a check, while the members of the sales staff gave him a handsome traveling bag.

OVER fifty years have passed since the first synthetic jasmine, created by Schimmel, appeared on the market. Continuing our leadership in this field today we offer several synthetic jasmine specialties.

OSMODOR JASMONTA

This basic jasmine of great strength gives a very natural effect. Can be used with jasmine or other floral or fancy bouquets to add distinction to your composition.

JASMINE "SCH. & CO." 1000

A true reproduction of the absolute, redolent as the fresh flower. Can be used with the natural product or to replace it on a pound for pound basis.

We welcome the opportunity to have you judge our jasmines. Write us on your firm's letterhead for samples.



**schimmel & co., inc.
601 west 26th street
new york 1, new york**

NEW TRADE MARKS

The following trade - marks were published in the December issues of the *Official Gazette* of the United States Patent Office in compliance with Section 6 of the Act of September 20, 1905, as amended March 2, 1907. Notice of opposition must be filed within thirty days of publication. As provided by Section 14, fee of ten dollars must accompany each notice of opposition.

Trade Mark Applications

"YOGA"—This in upper case, bold letters for toilet soaps. Filed Jan. 19, 1946 by Les Parfums de Dana, Inc., New York. Claims use since Dec. 31, 1945.

JOHN DWIGHT & Co's—This in upper case, extra bold letters to form an arc for bicarbonate of soda for use as a detergent, cleaning and washing agent. Filed Feb. 18, 1947 by Church & Dwight Co., New York. Claims use since 1876.

COW BRAND—This in upper case, extra bold letters to form an arc for bicarbonate of soda for use as a detergent, cleaning and washing agent. Filed Mar. 11, 1947 by Church & Dwight Co., New York. Claims use since 1880.

Lined circle. This for bicarbonate of soda for use as a cleaning and washing agent. Filed Mar. 11, 1947 by Church & Dwight Co., New York. Claims use since 1869.

Drawing of a cow for bicarbonate of soda for use as a cleaning and washing agent. Filed Mar. 11, 1947 by Church & Dwight Co., New York. Claims use since 1876.

Drawing of a lined rectangle for bicarbonate of soda for use as a cleaning and washing agent. Filed Mar. 11, 1947 by Church & Dwight Co., New York. Claims use since 1930.

WETSOL—This in upper case, bold letters for wetting agents for dust control. Filed Apr. 4, 1946 by Johnson-March Corp., New York. Claims use since Apr., 1945.

AMM-I-DENT—This in upper case, bold letters for dentifrice. Filed May 10, 1946 by Professional Dental Products, Inc., Flushing, N. Y. Claims use since Apr. 3, 1946.

TOXAPHENE—This in upper case, bold letters for chemical ingredient for use in the manufacture of insecticides. Filed Dec. 11, 1946. Claims use since Dec. 4, 1946.

WISP-AIR—This in upper case, bold letters for liquid air freshening deodorant. Filed Jan. 30, 1947 by Phillips Chemical Co., Chicago. Claims use since Dec. 26, 1946.

Fanciful drawing of the head of a woman encircled by clusters of bubbles. Filed Jan. 31, 1947 by Kay Daumit, Inc., Chicago. Claims use since Feb. 28, 1941.

RPM—This in upper case, reverse letters on a circular background that appears to be spinning and from which

extends a pair of wings, for rust preventives. Filed Apr. 18, 1947 by Standard Oil Company of California, Wilmington, Del. Claims use since Feb. 3, 1947.

NEOPONE—This in upper case, extra bold, bold letters for surface active agents. Filed May 3, 1947 by Ultra Chemical Works, Inc., Paterson, N. J. Claims use since Nov. 29, 1946.

BAN-O-VEX—This in upper case, extra bold, black letters for insect repellent. Filed June 30, 1947 by Chemical Manufacturing Co., Houston, Tex. Claims use since June 27, 1947.

SNO-FLAKE POLISH—This in upper case, extra bold, block and lower case, bold, script letters for liquid furniture polish. Filed June 6, 1947 by Sno-Flake Products Co., Detroit. Claims use since Dec. 1, 1934.

100% HUNDRED PER CENT—This in upper case, extra bold, black letters for toilet soaps. Filed Apr. 30, 1947 by Les Parfums de Dana, Inc., New York. Claims use since Apr. 22, 1947.

PARKO—This in upper and lower case, bold, script letters within a diamond outline for radiator cleaner. Filed Feb. 15, 1946 by Park Chemical Co., Detroit. Claims use since Apr., 1939.

VALCHEMCO—This in upper case letters within an oblate figure for chemical preparation for removing rust and carbon from automobile radiators. Filed Apr. 23, 1946 by Valley Chemical Co., Springfield, Mass. Claims use since Feb. 5, 1946.

LOOK LOVELY, ANGEL—This in upper case, reverse letters on a spherical background for shampoo. Filed July 3, 1946 by Carter Products, Inc., New York.

STEPHANIE—This in upper case, bold letters at the base of the fanciful drawing of a crown for shampoo. Filed Nov. 23, 1946 by Stephanie Limited, Inc., Cleveland. Claims use since Sept. 20, 1946.

LITTLE WOMEN—This in upper case, extra bold, black letters for toilet soaps. Filed Oct. 5, 1945 by Charles of the Ritz, Inc., New York. Claims use since Oct. 1, 1945.

PIGTAILS—This in upper case, extra bold, black letters for toilet soaps. Filed Oct. 5, 1945 by Charles of the Ritz, Inc., New York. Claims use since Oct. 1, 1945.

BAMBOO—This in upper case, extra bold, black letters for toilet and laundry soap. Filed Mar. 30, 1946 by Consolidated Cosmetics, Chicago. Claims use since Mar. 28, 1944.

PAM—This in upper case, bold, stencil letters for detergent. Filed Oct. 11, 1946 by Plunkett Trust, Chicago. Claims use since Mar. 16, 1944.

ARMISHINE—This in upper case, bold letters for shoe polish. Filed Jan. 24, 1947 by Flocos & Xidis Co., Pittsburgh. Claims use since 1939.

NAVISHINE—This in upper case, bold letters for shoe polish. Filed Jan. 24, 1947 by Flocos & Xidis Co., Pittsburgh. Claims use since 1939.

GLO-WASH—This in upper case, bold, stencil letters for spot remover

and detergent. Filed Jan. 31, 1947 by American Oil and Disinfectant Corp., New York. Claims use since September, 1941.

GOAL—This in upper case, extra bold, black letters for shave cream. Filed Apr. 10, 1947. Claims use since Mar. 1, 1947.

ALKATROL—This in upper case, bold letters for detergents and floor cleaning preparations. Filed Apr. 28, 1947 by Chemical Service Co., Baltimore. Claims use since Oct., 1940.

PRIORITY—This in upper case, bold letters for toilet soaps. Filed May 28, 1947 by Les Parfums de Dana, Inc., New York. Claims use since May 1, 1947.

CLEAN QUICK—This in upper case, extra bold, black letters for sudsing cleaner, cleanser and detergent. Filed by Procter & Gamble Co., Cincinnati. Claims use since Dec. 15, 1883.

DOVER—This in upper case, extra bold, black letters for sudsing cleaner, cleanser and detergent. Filed June 18, 1947 by Procter & Gamble Co., Cincinnati. Claims use since June 21, 1884.

CONCORD—This in upper case, bold, modern letters for sudsing cleaner, cleanser and detergent. Filed June 19, 1947 by Procter & Gamble Co., Cincinnati. Claims use since June 27, 1883.

LENEX—This in upper case, extra bold, black letters for sudsing cleaner, cleanser and detergent. Filed June 19, 1947 by Procter & Gamble Co., Cincinnati. Claims use since Dec. 4, 1884.

WASH WELL—This in upper and lower case, extra bold, black letters for sudsing cleaner, cleanser and detergent. Filed June 20, 1947 by Procter & Gamble Co., Cincinnati. Claims use since Dec. 5, 1883.

BRITE-ACE—This in upper case, bold letters for liquid shoe wax for polishing shoes. Filed July 1, 1947 by Old Dutch Industrial Products Co., Harrison, N. J. Claims use since Aug. 22, 1946.

ZEPTRON—This in upper case, extra bold, black letters for liquid and powder detergent cleaning agents. Filed July 1, 1947 by Tykor Products, Inc., New York. Claims use since Mar. 28, 1947.

ATOMIC—This in large and small capital letters for chemical drain pipe cleaner. Filed Jan. 26, 1946 by Samuel Mann, New York. Claims use since Aug. 20, 1945.

FRESHER ZONE—This in large and small upper case, open letters for chemical product for purifying the air and absorbing objectionable odors in electrical refrigerators, etc. Filed Apr. 18, 1946 by The Presco Co., Kansas City, Mo. Claims use since Apr. 15, 1946.

MARCO—This in upper and lower case, extra bold, black, script letters for insecticidal bulbs containing insecticide preparations. Filed Aug. 9, 1946 by Manufacturing and Tool Corp., Burlington, Vt. Claims use since Apr. 18, 1945.

VITA-GAS—This in upper case, extra bold, black letters for insecticide. Filed Aug. 9, 1946 by Vita-Var Corp., Newark, N. J. Claims use since July 12, 1946.

ZINC-8—This in upper case, bold letters for chemical products containing as the active substituent zinc 8-quinolinolate for use in combating insects. Filed Nov. 7, 1946 by Monsanto Chemical Co., St. Louis. Claims use since Oct. 2, 1946.

Synthetic **DETERGENTS**

FOR ALL INDUSTRIES



ULTRAPONE-S

This is a new, slightly alkaline organic surface active agent, which lends itself to a multitude of applications in textile and cosmetic trades as well as for household cleaning detergents.

PROPERTIES:

- 100% active
- Clear, soluble in water in all proportions
- Active in extremely low concentrations
- Forms Viscous solution in dilutions as low as 10%
- Compatible with soap, most sulphated oils, sulphated or sulphonated synthetic detergents
- Non irritating
- Rich foaming
- Has excellent dispersing qualities
- Acid, alkali and lime stable
- pH 8.8
- Emollient
- Has excellent detergency

SPRAY DRYING

Our extensive spray-drying facilities enable us to custom-spray dry detergents ranging from 10% to 60% organic actives. Choose the types most useful to your operation.

Our wide range of detergents are available in consumer form: household detergents, rug shampoo, bubble bath, powder shampoo, and car wash.

Complete packaging facilities for private brand products are also available.

SULFRAMIN DT POWDER OR PASTE

The low-priced versatile detergent.

PROPERTIES:

- Alkyl amido alcohol sulphate
- High resistance to hard water
- Unaffected by alkali, acids, or lime
- Freely soluble
- Forms no precipitate
- Produces rich liquors in dilutions as high as 1 to 10,000

OTHER ULTRA DETERGENTS

- Sulframin L W (Powder)
- Sulframin A B W (Powder)
- Sulframin DH (Paste)
- Sulframin D R (Liquid)
- Sulframin D R B (Liquid)
- Sulframin N (Paste)
- Ultrapone L R (non-ionic)

ULTRA CHEMICAL WORKS, Inc.

PATERSON, NEW JERSEY

CHICAGO, ILLINOIS

IN CANADA: Delta Chemical Works Corp., Brantford, Ontario • IN MEXICO: Icon, S. A., Mexico, D. F.

RESIDEX—This in upper case, medium bold letters for liquid and powder insecticides. Filed Dec. 4, 1946 by Residex Corp., Newark, N. J. Claims use since Oct. 30, 1946.

BLITZ—This in upper case, extra bold, black letters for chemical preparation for removing tarnish, etc., from silver. Filed Dec. 26, 1946 by Koch Laboratories, Inc., Winona, Minn. Claims use since June, 1946.

PRESTO—This in upper case, extra bold, black letters for bleaching and cleaning preparations. Filed Jan. 4, 1947 by Radiant Wash Solution Co., Olean, N. Y. Claims use since Oct. 2, 1939.

MAST-R-SPRA—This in large and small, bold, capital letters for insecticides. Filed Jan. 14, 1947 by Andrew Wilson, Inc., Springfield, N. J. Claims use since May 21, 1946.

ERUOPON—This in upper case, bold letters for soapless wetting agents. Filed June 18, 1947 by Geigy Co., New York. Claims use since Feb. 18, 1938.

KT—This in upper case, oversize, extra bold, black letters for insecticide used for the eradication of termites. Filed June 25, 1947 by Christian H. Momberger, Baltimore. Claims use since Aug. 22, 1945.

RUBY RUG SHAMPOO—This in upper and lower case, bold letters for rug shampoo. Filed June 15, 1945 by United Sanitary Chemicals Co., Baltimore. Claims use since Mar. 10, 1943.

CHEM-PRO—This in upper case, bold letters superimposed on two chemistry flasks for general purpose cleaning and sanitizing compound. Filed Apr. 15, 1946 by Chemical Process & Engineering Co., Los Angeles. Claims use since Aug. 30, 1945.

CHEM-PRO-SOLV—This in upper case, extra bold, black letters for general purpose cleaning and sanitizing compound. Filed Apr. 15, 1946 by Chemical Process & Engineering Co., Los Angeles. Claims use since Aug. 30, 1945.

GMK—This in upper case, bold, open letters superimposed on a key-stone in which is the fanciful drawing of a Confederate general, for washing powders and similar cleaning compositions. Filed May 18, 1946 by Pennsylvania Salt Manufacturing Co., Philadelphia. Claims use since Feb. 14, 1945.

KELA—This in upper case, oversize, extra bold, black letters for brushless shaving cream. Filed Feb. 3, 1947 by Kela Products Co., Binghamton, N. Y. Claims use since Jan. 20, 1947.

THOROUGHRED—This in upper case, bold letters for soap to promote retention of luster or normal surface condition of leather. Filed Apr. 7, 1947 by Sunbeam Products, Inc., Toledo. Claims use since 1931.

WEST-GLO—This in upper case, bold letters for soap. Filed May 7, 1947 by West Disinfecting Co., Long Island City, N. Y. Claims use since Apr. 1936.

MARVELLA—This in upper and lower case, open, Old English style letters for denture cleaner and stain remover. Filed July 1, 1947 by Marvella Products Co., Peoria, Ill. Claims use since Dec., 1924.

POTA-TOX—This in large and small upper case, extra bold, black letters for insecticidal composition. Filed July 19, 1944 by Niagara Sprayer and Chemical Co., Middleport, N. Y. Claims use since June 21, 1940.

RORRE-ON—This in upper case, extra bold letters for chemical compound in liquid form to be mixed with fat to form soap. Filed Dec. 19, 1946 by Rorre-On Co., Bowling Green, Va. Claims use since Oct. 14, 1946.

GAMMACIDE—This in upper case, extra bold, black letters for insecticides. Filed Feb. 26, 1947 by California-Spray Chemical Corp., Wilmington, Del. Claims use since Sept. 4, 1945.

AMAZU—This in upper and lower case, bold, script letters for bathroom disinfectant. Filed Apr. 25, 1947 by Peckham Mfg. Co., Pomona, Calif. Claims use since June 10, 1945.

PARCLAY—This in upper case, bold letters for clay carrier or diluent for insecticide. Filed May 16, 1947 by R. T. Vanderbilt Co., New York. Claims use since Feb. 7, 1947.

KOP-O-RITE—This in large and small capital letters for insecticides. Filed June 19, 1947 by Andrew Wilson, Inc., Springfield, N. J. Claims use since January, 1947.

I.C.—This in extra bold, open and shadow, oversize letters for degreasers and detergent-type polishes for tile, porcelain, refrigerators, ranges, etc. Filed Mar. 11, 1946 by Interchemical Corp., New York. Claims use since Sept. 10, 1945 for degreasers and since Jan. 19, 1946 for detergent-type-polishes.

ARBRITE—This in upper case, extra bold, black letters for metal polish. Filed Dec. 13, 1946 by Affiliated-Retailers, Inc., New York. Claims use since Nov. 3, 1946.

SPOUT—This in upper and lower case, bold, script letters for dry cleaning preparation. Filed Dec. 28, 1946 by Spout Products Co., Cincinnati. Claims use since Sept. 5, 1945.

SPOUT—This in upper and lower case, bold, script letters across the spout of a watering pot for dry cleaning preparation. Filed Dec. 28, 1946 by Spout Products Co., Cincinnati. Claims use since Sept. 5, 1945.

TOWN AND COUNTRY—This in upper and lower case, bold, script letters for wax remover. Filed Apr. 9, 1947 by Interchemical Corp., New York. Claims use since Nov. 18, 1946.

INTERTOX—This in upper case, medium bold letters for chemical preservative compound for preventing dry rot or other deleterious action of fungi. Filed Oct. 21, 1946 by International Paint Co., New York. Claims use since Nov. 18, 1943.

WHITEHALL—This in upper case, reverse letters on a rectangular block and beneath a gable like design for tooth powder and tooth paste. Filed Nov. 4, 1946 by Whitehall Pharmacal Co., New York. Claims use since June 11, 1945.

MODART—This in upper and lower case, medium bold, script letters for shampoo. Filed Jan. 27, 1947 by La Maur Products, Inc., Minneapolis. Claims use since Aug. 31, 1936.

TAILSPIN—This in upper case, extra bold, black letters for insecticides. Filed Mar. 24, 1947 by Cornelius Co., Minneapolis. Claims use since Jan. 1, 1947.

KREMAY—This in upper case, bold letters for hair shampoo. Filed Apr. 1, 1947 by Catherine G. Ross, Chicago. Claims use since May, 1934.

ISOTOX—This in upper case, extra bold, black letters for insecticides. Filed Apr. 15, 1947 by California Spray-

Chemical Corp., Wilmington, Del. Claims use since Sept. 18, 1945.

TRUSIDIT—This in upper case, extra bold, black letters for insecticides. Filed June 30, 1947 by Chemola Manufacturing Co., Houston, Tex. Claims use since June 27, 1947.

Fatty Acids Book

A new book titled: "Fatty Acids, their Chemistry and Physical Properties," by Klare S. Markley, was published by Interscience Publishers, New York, during the past summer. The book is the latest and most comprehensive treatise on fatty acids and is one of the few texts that deals solely with these compounds in an exhaustive manner. The book assembles, correlates and evaluates the chemical and physical facts and data pertaining to fatty acids with emphasis on the longer chain fatty acids which are found in fats, oils, waxes and soaps. The chapters on stereochemistry and isomerism are particularly interesting and offer a good review of the entire subject and how it applies to the fatty acids. A fifteen page author index and a twenty page subject index are included and should be helpful for references. The author makes extensive use of tabular means of presenting data and references. Five major subdivisions of the subject are treated. The first of these deals with classification and structure of fatty acids, and occupies about 10% of the volume. The next two breakdowns are on physical properties and on chemical reactions of the fatty acids. The last two subdivisions concern synthesis and isolation of fatty acids, which subjects are treated more briefly but leave the impression that a great deal of research now being carried on in this field will have an important bearing on our understanding of the fatty acids and their applications in industry. The book contains 668 pages and is priced at \$10. Reviewed by Willis J. Beach.

Variety Retailers Convene

The National Association of Variety Stores will hold its annual convention and fifth merchandise fair at the Sheraton Hotel, Chicago, February 3-6. Highlighting the meeting will be an industry forum and daily panel discussion on prices, supply and merchandising by NAVS national directors.

IF YOU WANT TO GAMBLE.....



DON'T let us stop you! But if you prefer to play safe . . . if you want the *best values* and *service* that money can buy, you'll place your perfume problems and orders for perfume raw materials in the hands of those suppliers who have proved, over long years, their ability to serve you dependably, efficiently and economically, during boom periods and bad, with unfailing consideration of your needs. We believe any buyer who has ever dealt with our firm long enough to be a judge will support this statement 100%. We believe, too, that if you have not yet availed yourself of FRITZSCHE services or supplies, it will pay you to sample our offerings. If you have an odor problem, let our laboratories help you solve it; if you need quality ingredients, fairly priced, let us quote you on your immediate requirements.

FRITZSCHE
— *Brothers, Inc.*



Est. 1871

PORT AUTHORITY BUILDING, 76 NINTH AVENUE, NEW YORK 11, N. Y.

BRANCH OFFICES and *STOCKS: Atlanta, Ga., *Boston, Mass., *Chicago, Ill., Cincinnati, O., Cleveland, O., Dallas, Tex., Detroit, Mich., *Los Angeles, Calif., Philadelphia, Pa., San Francisco, Calif., *St. Louis, Mo., *Toronto, Canada and *Mexico, D. F.
 FACTORIES: Clifton, N. J. and Seillans (Var), France.

BIDS AND AWARDS

Treasury Floor Wax Bids

The following bids were received in a recent opening for miscellaneous supplies by the Bureau of Federal Supply, Treasury Department, Washington, D. C., on item 1, (52W-465), 15,000 pounds of floor wax; item 2, (5W-420), 3,300 gallons and item 3, (52W-400), 300 gallons: McAleer Mfg. Co., Rochester, Mich., item 1, \$5.8807 a container for a total of \$2,940.35; item 2, \$34.1288 a container for a total of \$2,047.73; item 3, 88.967 cents a container for a total of \$266.90; Twin City Shellac Co., Brooklyn, item 1, 15 cents; item 2, 75 cents and item 3, 85 cents; Huntington Laboratories, Huntington, Ind., item 1, 41.5 cents; item 2, \$1.25 and item 3, \$1.55; Windsor Wax Co., Hoboken, N. J., item 1, 14.6 cents; item 2, 59.9 cents and item 3, 64.8 cents; Pur-All Paint Products Co., New York, item 1, 20 cents; S. C. Johnson & Son, Racine, Wis., item 1, 23.4 cents; item 2, \$1.23 and item 3, \$1.50; Uncle Sam Chemical Co., New York, item 1, 15.5 cents; item 2, 65 cents and item 3, 80 cents; Bri-Test, Inc., New York, item 2, 56 cents and item 3, 70 cents; Bond Sanitary Products Co., York, Pa., item 1, 16.1 cents; item 2, 66.25 cents and item 3, 81 cents; Jones Products, Cambridge, Mass., item 1, 22 cents; item 2, \$1.15 and item 3, \$1.25; Selig Co., Atlanta, Ga., item 1, 18 cents, item 2, \$1.24 and item 3, \$1.25; Butcher Polish Co., Boston, item 1, 21 cents in 33-pound drums, 445 drums; item 2, \$1.00 in 60 drums and item 3, \$1.32; Lasting Products Co., Baltimore, item 1, 16 cents; item 2, 80 cents and item 3, 98 cents; Trio Chemical Works, Brooklyn, item 1, 11.9 cents; item 2, 54.5 cents and item 3, 65 cents; N. J. Chemical Co., Bayonne, item 1, 20 cents; items 2 and 3, 22 cents; Sherwin-Williams Co., Washington, D. C., item 1, 27 cents; item 2, 72 cents and item 3, 97 cents; Boston Chemical Industries, Washington, D. C., item 1, 17 cents; item 2, 82 cents and item 3, \$1.02; Liquid Veneer Corp., Washington, D. C., item

2, 88 cents and item 3, 95 cents; Oil Specialties and Refining Co., Brooklyn, item 1, 11.27 cents; item 2, 64.9 cents and item 3, 77.1 cents; R. M. Hollingshead Corp., Camden, N. J., item 1, 13.75 cents; item 2, 57 cents and item 3, 67 cents; International Metal Polish Co., Indianapolis, Ind., item 1, 25 cents; item 2, 98 cents and item 3, \$1.28; Buckingham Wax Co., Long Island City, N. Y., item 1, 14.9 cents; item 2, 64.5 cents and item 3, 74.5 cents.

P. O. Laundry Soap Bids

The following bids were received on 25,000 pounds of laundry soap in a recent opening for miscellaneous supplies by the Post Office Department, Washington, D. C.: Knoxall Corp., Indianapolis, 24 cents; Fischer Industries, Cincinnati, 16.95 cents; Gillam Soap Works, Fort Worth, Tex., alternate 16 ounce bars, 13 cents; Unity Sanitary Supply Co., New York, 20 cents; Cudahy Packing Co., Chicago, 22.75 cents, f.o.b. New York; 22.25 cents, f.o.b. Chicago, and 22.5 cents, f.o.b. Atlanta; Standard Soap Co. of Camden, N. J., f.o.b. New York, on 16 ounce bar, 15.6 cents; f.o.b. Chicago, 16 cents; and 15.74 cents, f.o.b. Atlanta; Armour & Co., Chicago, f.o.b. North Bergen, N. J., 14.5 cents; 15.06 cents, f.o.b. Chicago; 15.74 cents, f.o.b. Chicago and 15.74 cents, f.o.b. Atlanta; Kamen Soap Products Co., New York, 13.4 cents, f.o.b. New York, Chicago and Atlanta.

G. P. O. Liquid Soap Bids

Among the bidders in a recent opening for miscellaneous supplies by the Government Printing Office, Washington, D. C., on 4,400 gallons of liquid soap were the following: Peck's Products Co., St. Louis, 53 and 58 cents; Dixie Janitor Supply Co., Washington, D. C., 65 cents; Chemical Manufacturing & Distributing Co., Easton, Pa., 41 cents; Harley Soap Co., Philadelphia, 41 cents plus \$3 for drum deposit; R. M. Hollingshead Corp., Camden, N. J., 54 cents; Lanair Chem-

ical Corp., Chicago, 53 cents; Crystal Soap & Chemical Co., Philadelphia, 44.9 cents plus \$5 a drum deposit; Jos. E. Frankle Co., Philadelphia, 64 cents; Trio Chemical Works, Brooklyn, 50 cents, plus \$3 per drum deposit; Fischer Industries, Cincinnati, 65 cents; Dorsett-Jones, Baltimore, 62.1 cents; E. F. Drew & Co., Boonton, N. J., \$1; New York Soap Co., New York, 75 cents; Chicago Sanitary Products Co., Chicago, 42 cents; Davies-Young Soap Co., Dayton, 65 cents and Bri-Test, Inc., New York, 53 cents.

P. O. Scouring Powder Bids

In a recent opening for miscellaneous supplies by the Post Office Department, Washington, D. C., the following bids were received on 20,000 pounds of scouring powder: Dorsett-Jones, Baltimore, 7.6 cents a pound; Chemical Manufacturing & Distributing Co., Easton, Pa., 4.59 cents; Wyandotte Chemical Corp., Wyandotte, Mich., f.o.b. New York, Chicago, Atlanta, Kansas City and San Francisco, all 7 cents; Safford Co., Tryon, N. C., 2.75 cents; Unity Sanitary Supply Co., New York, 6.5 cents; Peck's Products Co., St. Louis, f.o.b. St. Louis, 5.5 cents; f.o.b. New York, 6.75 cents; f.o.b. Chicago, 6.25 cents; f.o.b. Atlanta, 6.25 cents; f.o.b. Kansas City, 6.25 cents and f.o.b. San Francisco, 8 cents; Marjo Products Co., Chicago, 3.2 cents.

Spark Plug Cleaner Bid

In a recent opening for miscellaneous supplies by the Army Air Corps, Wright Field, O., Air Material Command, the following bid was received on 250,000 pounds of ceramic spark plug cleaning compound: A. C. Spark Plug Division, General Motors Corp., Flint, Mich., 7.6 cents a pound.

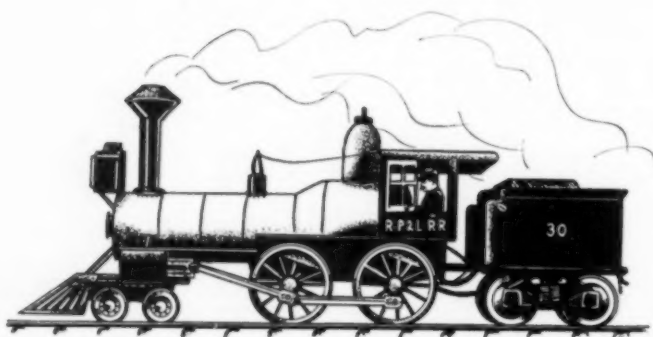
Leon Eldot Retires

L. Sonneborn & Sons, Inc., New York, has announced the retirement, effective December 31, 1947, of Leon D. Eldot, manager of its building products division. Mr. Eldot has not announced his future plans. He recently completed a term of office as president of the New York Paint, Varnish and Lacquer Association.



Est. 1838

Olive Oil
Neatsfoot Oil
Coconut Oil
Cottonseed Oil
Palm Kernel Oil
Stearic Acid
Oleo Stearine
Soya Bean Oil
Castor Oil
Sesame Oil
Lard Oil
Palm Oil
Corn Oil
Peanut Oil
Grease
Tallow
Red Oil
White Olein
Fatty Acids
Soap Colors
Chlorophyll
Soda Ash
Sal Soda
Talc
Caustic Potash
Caustic Soda
"CEREPS"
Superfat



SINCE THE DAYS OF THE IRON HORSE

... dependable suppliers to SOAP MAKERS

VEGETABLE OILS
COCOANUT OIL
SESAME OIL
APRICOT KERNEL
OIL

ANIMAL OILS
RED OIL
FATTY ACIDS

REFINED TALL OIL
MINERAL OILS
STEARIC ACID
BABASSU OIL
LANOLIN

Alkalies and Other Chemicals

Textile and Laundry Starch and Sours

Silicate of Soda "Metso", all types

"Quadrafos", Granular or beads

a stable polyphosphate for water conditioning and mild but effective detergency

AIR DRYETTES and CALCIUM CHLORIDE

CHLOROPHYLL-CAROTENE and other chloroplast pigments

LECITHIN

THE MAYPONS—Unique surface active agents; prolific foam; high detergency and emulsifying powers; suitable for cosmetic and industrial use.

Let us mix your private formulas

WELCH, HOLME & CLARK COMPANY, Inc.

Importers — Dealers — Brokers

439 West Street

New York 14, N. Y.

Warehouses: New York, N. Y. — Newark, N. J.

RAW MATERIAL

MARKETS

As of December 31, 1947

FAT and oil prices declined sharply and substantially during December from near record levels approached toward the end of November. Tallow and grease prices fell off about seven cents a pound during the month just ended, and on each of two days in December prices dropped two cents a pound. In pre-war days changes of a fraction of a cent were considered noteworthy. Prices of other fats and oils used by soap makers receded somewhat from their high levels during December. Crude coconut oil, for example, slipped from a 25-26 cents-a-pound range in November to 20-21 cents per pound late in the following month. Since the bottom of the price recession was touched around Dec. 20th, prices have advanced on various oils and fats

from $\frac{1}{2}$ to one cent a pound. Incidentally, when tallow and greases reached the 20 cents a pound market (fancy grade), none was available.

The second big event that took place during the past month, and one that is said to have been the cause of the sharp drop in oils and fats prices, was the announcement of the greatly reduced allocation of fats and oils for export by the U. S. during the first quarter of 1948. The U. S. Department of Agriculture announced that only 87,000,000 pounds of fats and oils were being allocated for export during the first three months of 1948. The first quarter allocation is slightly more than half that for the first three months of 1947, and about one-fifth of the allocation for the fourth quarter of 1947.

A report of the U. S. Depart-

ment of Agriculture released during December showed that during the eleven month period ending Nov. 30, 1947, Philippine production of copra and coconut oil totaled 921,848 long tons, more than double the average annual production during the 1935-1939 period. Coconut oil production in the Philippines accounted for only 17,625 tons of this total, while 894,443 long tons of copra were produced. Of the copra produced, the United States was allocated 533,150 long tons, of which 44,000 tons were for reexport abroad in the form of oil, leaving a total of 489,150 long tons for U. S. consumption. Prewar U. S. annual imports were approximately 200,000 long tons. The reason for the small output of Philippine coconut oil, in contrast to the large production of copra, may be explained by

CRESYLIC ACID — FORMALDEHYDE

High Boiling Tar Acids

Tar Acid Oil

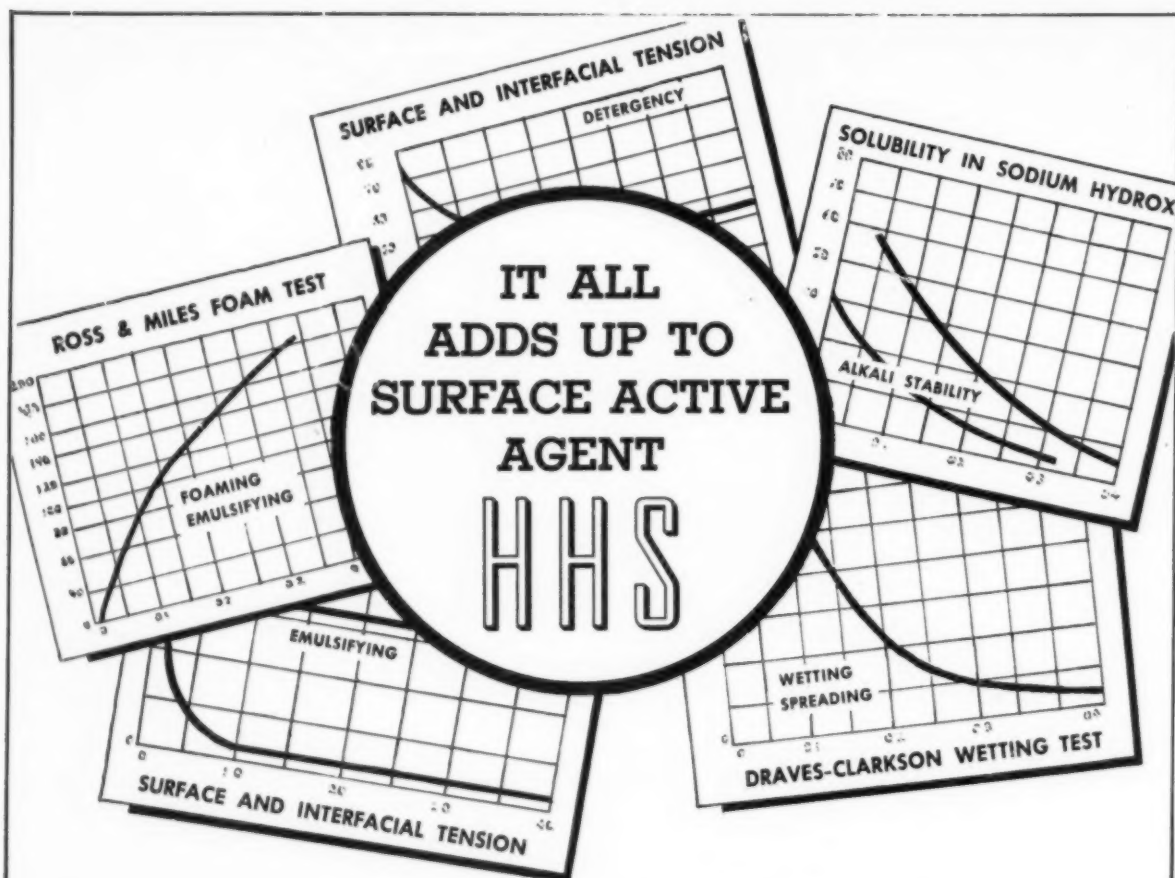
Pyridine Bases, Refined, boiling range 160-190°C.

Basic raw materials for disinfectants,
insecticides, soaps, perfumes, plastics,
textiles, pharmaceuticals, lacquers, etc.

ASSOCIATED COMPANIES

KAY FRIES CHEMICALS, INC. CHARLES TENNANT & CO., CANADA, LTD.
NEW YORK, N. Y. TORONTO, CANADA

AMERICAN-BRITISH
CHEMICAL SUPPLIES, Inc.
180 MADISON AVE., NEW YORK



CUT COST . . . CUT DIRT with this **NEW Organic Chemical**
HHS has all qualities required of a Surface Active Agent:

ACID STABILITY	EMULSIFYING
ALKALI STABILITY	FOAMING
SPREADING	DETERGENCY
WETTING	NEUTRAL
HARD WATER STABILITY	

One pound of HHS can be used to replace two to four pounds of soap in your formulae. At 13c per pound, this new Surface Active Agent offers economies to every manufacturer of soaps and allied products.

A free testing sample of HHS with complete technical data is yours, upon request. Quantity lots in dry flake form are now available in 125 lb. net drums.

PUBLICKER INDUSTRIES Inc.

1429 WALNUT STREET, PHILADELPHIA, PA.

the lack of adequate processing facilities in the Islands. Before the war, the Philippines produced about 161,747 tons of coconut oil annually, and of this total, about 95 per cent was normally sent to the United States.

The production outlook for the Philippines for 1948, according to informed sources, is about 950,000 long tons of copra, which is about the same as the 1947 crop. However, typhoon damage may reduce this estimate by about 10 per cent. There is some talk of an effort by the U. S. Government to stimulate production of oil in the Islands and also in the Netherlands East Indies, a large copra producing area before the war.

During the month of December there were also reports of a predicted rise of output of palm oil in the Netherlands East Indies. From Batavia reports were issued to the effect that first quarter 1948 production of palm oil would be around 40,000 tons. Five palm oil factories are now said to be operating in east

coastal region of Sumatra. Further activity in palm oil production will probably come about as a result of dredging operations to begin shortly that will further rehabilitate the eastern coastal region of Sumatra.

A rise in the amount of cottonseed crushed in the four months from Aug. 1 to Nov. 30, 1947, as compared with the corresponding period of 1946 was reported Dec. 15 by Bureau of the Census of the U. S. Department of Commerce. A total of 1,691,202 tons of cottonseed was crushed during the three months period this year as against 1,356,986 tons in the corresponding period of 1946. Stocks of cottonseed on hand at the mills on Nov. 30 were 3,106,691 tons, compared with 2,336,828 tons on the same date in 1946.

Crude glycerine prices late in December followed the trend in fats and oils prices and dropped as much as three cents pound in a single week. Refined glycerine prices are stabilized under strong domestic demand.

On the essential oil front, spearmint oil gained 10 cents a pound during the latter part of the month. At about the same time it was reported that 700 cases of menthol will arrive in the United States from Japan during the opening weeks of January. The menthol was originally allocated to India, but that country was reported unable to finance the goods. In general, the latter part of December was quiet as far as essential oils and aromatic chemicals are concerned. Price changes were few, one oil, coriander, advancing because of a shortness of supply that developed, while five oils: cassia, pennyroyal, petitgrain Paraguay, tansy and wormwood oil all declined.

Montean Joins Firmenich

John J. Montean joined the sales staff of Firmenich & Co., New York, on January 1, 1948. For the past five years he was associated with the Naugatuck division, United States Rubber Company.

NEW... SPECIALLY DESIGNED FOR SERVICE STATION, GARAGE, AND HOME USE!

Transparent Plastic POWDERED SOAP DISPENSER by Federal

Inexpensive . . . low in maintenance cost . . . modern styling!

These are important features which appeal to customers desiring a practical, long-life dispenser of small capacity.

Made of durable, transparent plastic, this new Federal model has positive metal agitator to prevent packing . . . meets most soap flow characteristics. Push-up plunger permits quick, easy one-hand operation. Close-fitting top swings open for convenient filling. Steel sleeve surrounding dispensing mechanism gives added strength . . . provides secure support for spotwelded steel bracket for wall mounting. Metal parts have baked enamel finish to harmonize with plastic color.

Capacity: approximately 1 pint; size: 8" high x 4" diameter.

Fully guaranteed. Write today for quotations. Samples sent on memo billing for inspection.

(WE DO NOT SELL SOAP POWDER)

FEDERAL TOOL CORP., 400 N. LEAVITT ST., CHICAGO 12, U.S.A.



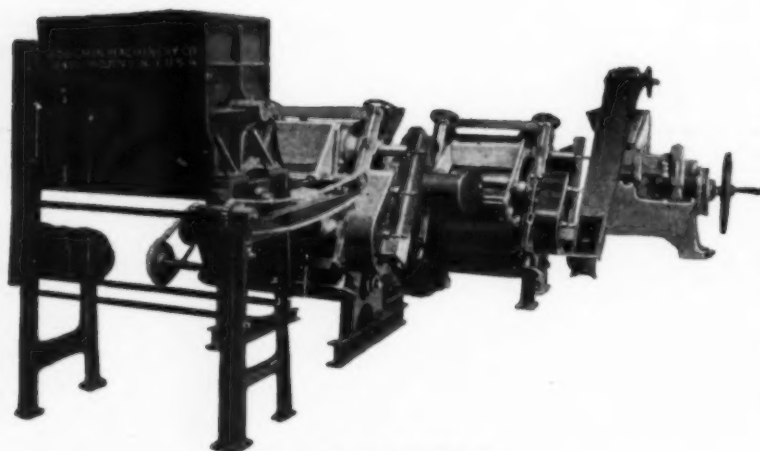
No. 11

Perfect Balance

is also important in
complete assembly units
for milling and plodding.



HOUCHIN SOAP MAKING MACHINES



Capacity for Complete Unit
No. 3—1,000 lbs. per hour
(once through).

— designed and integrated in units that
insure fast and unbroken production
from start to finish.

Complete Details Upon Request

Complete Unit No. 3 For Milling and Plodding Toilet Soap

Unit consists of:

- 1—Ideal Amalgamator, with motor.
- 2—Three-Roll Chilled Iron Water-Cooled Mill Rolls, 12"x30".
- 2—8" Preliminary Plodders fitted with Screen.
- 1—Conveying Screw with motor.
- 1—10" Finishing Plodder fitted with Electric Heater and Forming Plate.
- 1—Automatic Bar and Cake Cutter.

Unit operated by (2) 15 H.P.—(1) 10 H.P.—(1) ½ H.P. Motors. Roller Chain Drives. Complete Weight 24,000 lbs. Floor Space 15 ft. x 21 ft.

HOUCHIN MACHINERY CO., Inc.

Manufacturers of Soap Making Equipment

SIXTH AND VAN WINKLE AVENUES

HAWTHORNE, N. J.

PRODUCTION **SECTION**

SOIL REMOVAL **with synthetic detergents**

Synthetic detergents less satisfactory when dealing with high degree of soiling

THE process of removing soil from fabric can be divided into three stages: (1) The detergent solution must come into intimate contact with the fabric and penetrate between the fibers. (2) The oil present in the soil must be removed, then the solid soiling matter will usually come away fairly easily. (3) The soiling matter after removal must remain suspended in the solution and not be redeposited on the fabric.

To attain intimate contact between the solution and fabric, the surface tension of the former must be low; and for removal of oil, interfacial tension against oil must be low. Usually these two properties are more or less parallel. The physical properties necessary to produce suspending power are very complex and are not thoroughly understood. Oil is, of course, emulsified in the ordinary way, and the solid soil is probably held in suspension largely by the formation of a protective coating of colloid which prevents aggregation. A test frequently used to measure the suspending power of a detergent solution is to observe the rate of sedimentation in the solution of small particles of carbon black or of some other finely divided solid, but this test is by no means conclusive.

Nonionic Compounds

A NION-ACTIVE and cation-active synthetic detergents have been pretty thoroughly discussed, but the nonionics still deserve further general consideration. Probably the most

important class of nonionics comprises the polyethylene oxide derivatives. The amount of ethylene oxide in the molecule can be varied at will to give any required degree of solubility. Most of the "Igepals" (IG) are alkyl phenol ethylene oxide condensation products with 5 to 11 molecules of ethylene oxide present.

Many of the ethylene oxide products give clear solutions in cold water, but on being heated, the solutions become cloudy. These cloudy solutions, however, still have detergent properties; in fact, there is a divergence of opinion as to whether or not they are better than the clear solution. The hydroxyl group has sometimes been sulfated in order to render the molecule completely soluble at all temperatures, but the resulting compound is then no longer nonionizing. Incorporation of more ethylene oxide into the molecule reduces the tendency for clouding to occur in hot solutions, or increases the water solubility. The ethylene oxide condensation products are usually soluble in both oil and water, which makes them very good emulsifying agents. They are relatively cheap and can often be manufactured as by-products from the coal-tar or petroleum industries.

Detergency Evaluation

IT is important to stress the fact that wetting agents are not necessarily detergents. Detergency is a very complex process, since so many factors are involved, but it would appear that only the ability to reduce surface tension and interfacial tension is necessary

for a substance to be a wetting agent. Some wetting agents such as the saponins which are natural glucosides, possess no detergent properties, while in others such as the "Aerosols," the detergent properties are very slight.

Since detergency is so complex, it is not surprising that great difficulties have been encountered in trying to evaluate the efficiency of a detergent by laboratory tests. Measurements of surface tension and of interfacial tension against oil are of value as a preliminary step, since a substance is unlikely to be of use as a detergent if these values are not lowered. But such measurements are negative in the sense that a decrease in tension does not necessarily indicate a good detergent.

The only real test for detergency is undoubtedly that of actual practice, and many attempts have been made to reduce this to a laboratory test by washing small pieces of cloth soiled with standard soil. The most obvious difficulty here is that artificial soilings are different from those encountered in practice, and the results obtained frequently depend on the nature of the artificial soil used. Also the fabric has a much higher degree of soiling than that experienced in practice. This is necessary in order to get comparable results, particularly when these are read with a photometer. Also it is necessary that even the best detergents leave a measurable amount of soil on the cloth, and it is the last traces of soil which are extremely difficult to remove. In the laundry, it is these last traces which

MAYPON The Improved Lamepon • MAYPON The Improved Lamepon

**for sudsing and
deterging purposes...**

MAYPON SUPER K
and
MAYPON K
for
Household
and
Industry

USE...
MAYPON
(THE IMPROVED LAMEPON)
PROTEIN — FATTY ACID — CONDENSATION PRODUCT

MAYPON 4C
for
Cosmetics

produced ONLY by
MAYWOOD CHEMICAL WORKS
MAYWOOD, N. J.

Samples
and
Literature

MAYPON The Improved Lamepon • MAYPON The Improved Lamepon

must be removed, so that use of heavy artificial soil is not comparable to use conditions.

Results obtained with use of standard soil should be interpreted so as to give an indication of which substances will probably prove to be the best detergents, and to suggest which should be used in full-scale laundry trials. Laboratory tests may be very useful as a guide for large-scale tests, which are essential in order to obtain really reliable results.

In general, cation-active compounds are strongly bactericidal, anion-active compounds are fair, and non-ionic detergents have little or no bactericidal power.

Applications

THE use of synthetic detergents for dishwashing is obviously quite different from the cleansing of fabrics, in that it is primarily a process of emulsifying fats. Only a small concentration of detergent is necessary in order to achieve this end.

Many preparations containing synthetic detergents have been marketed for home laundry use, but on the whole these have not proved very popular compared with soap, possibly because they are not satisfactory when dealing with a high degree of soiling.

Cation-active compounds are not used for ordinary detergent processes, since the positive charge tends to drive the soil onto the fabric instead of removing it. This has, however, provided one very interesting application. Much cross-infection in hospital wards can be attributed to bacteria being shaken off blankets. But if the blankets carry a thin film of mineral oil, the bacteria stick to them and room infection is reduced.

Extremely satisfactory results can be obtained by immersing the blankets in an emulsion of oil in water, with a cation-active compound as the emulsifying agent. This compound drives the oil particles on to the wool blanket, and almost complete exhaustion of the emulsion can be obtained. The amount of oil used should be 5 per cent of the weight of the blanket. This does not give an oily feel or appearance to the fabric, and no

trouble arises in its use. J. A. Hill, *J. Soc. Dyers and Colourists* 63, 319-22 (1947).

Surface Activity

SURFACE activity involves wetting, spreading, emulsification, dispersion, detergency and solubilization. Wetting has been defined as the ability of liquid to form a persistent liquid/solid interface when excess of liquid is drained from the surface. Spreading is the ability of the liquid to form a persistent liquid/solid interface solely by surface activity over the plain solid surface. Spreading should be distinguished from the penetration or creep of liquid through a porous solid, the effect of the roughened surface being to magnify the wetting properties of the solid. Dispersion has been defined as the separation or deflocculation of particles, which is accomplished by overcoming the adhesive forces between them, and is clearly related to wetting and spreading.

Detergency is a complicated phenomenon which involves the displacement of dirt, including oil, on the fiber by the detergent solution. The relative degree of attraction of the detergent solution and of the dirt for the fiber is therefore of importance, and a solution-fiber contact angle of almost zero is required. The air in the capillary system and the dirt displaced from the cloth require to be emulsified, suspended, or dissolved. The dirt has to be held in permanent suspension and prevented from redeposition on the cloth.

Although reduction of interfacial tension of the solution/dirt system is fundamental to detergency, anomalies in actual practice indicate that differences in adhesion values also exert influence. Other factors in detergency include (1) adsorption of the detergent by the fiber, thereby causing a reduction in the effective concentration of the detergent; (2) the pH of the system—alkalinity generally favors detergency owing to the formation of soaps *in situ* by the action of alkali on saponifiable oil; (3) solvent action—recent evidence indicates that a solubilization must play a considerable

part in detergent action; and (4) the presence of electrolytes.

Effect of Electrolytes

INCREASED activity of surface-active agents on addition of electrolytes can be accounted for by the change in the potential energy of the surface film, brought about by the increased concentration of ions of opposite charge in the aqueous solution. Such ions—cations in the case of anionic detergents—probably neutralize the repulsive charges between the hydrophilic groups in the surface of the interfacial film, and thereby increase the closeness of packing of the surface molecules.

Although electrolytes enhance wetting and detergency, except under conditions where they have a salting-out effect, they generally exert a detrimental influence on emulsification. This is mainly due to their disturbance of the balance of the molecule of the emulsifying agent at the interface, and to their discharging effect on the globules of the dispersed phase, resulting in an acceleration of coalescence.

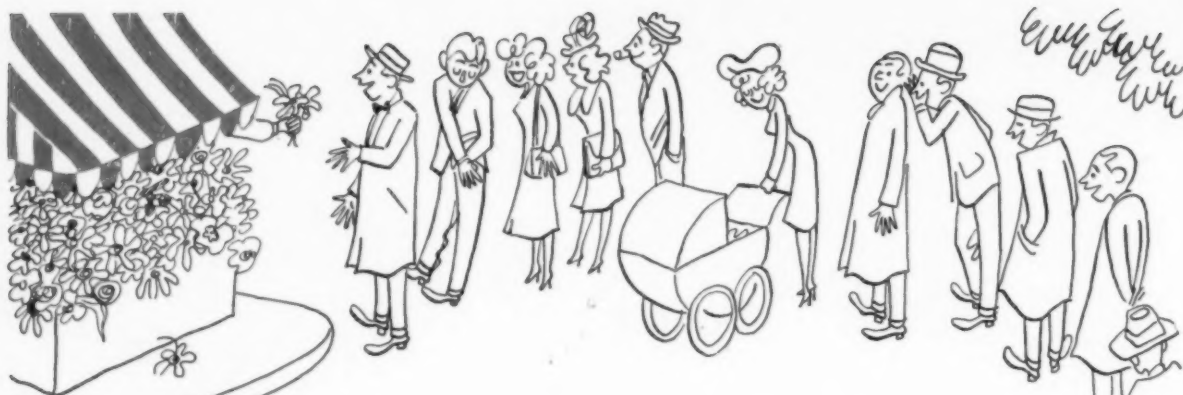
Solubilization

SORPTION on micelles of detergent, ordinary solution in the hydrophobic portion of the micelles, and the formation of layers within lamellar micelles of detergent, all occur in the process known as solubilization. X-ray data prove that solubilization in certain cases is due to sandwich-like layers between polymeric leaflets in detergent micelles.

While various methods have been used to study the properties of surface-active agents, there is a real lack of standardization and uniformity in the general methods of testing them. R. Leslie, *Manufacturing Chemist* 18, 449-54 (1947).

Wool Wax Acids

The metallic soaps of wool wax acids have been found to give materials suitable for use in polishes, rust preventives, and as substitutes for waxes. In preparing these materials, the wool wax acids are heated with fresh slaked lime in dry powder form in an open vessel at 120°C. or over, with constant stirring. After neutralization the mass



Build good business on good scents...from **NORDA**

Your customers depend upon your good scents, so you should always depend on Norda.

Norda makes good scents. Norda will help you make money.

Many a popular new odor and essence have been born in Norda laboratories. The imagination and skill that work for you there have produced a lot of best sellers.

Is it something unusual you want? Something excitingly different for an exclusive perfume, or lipstick, or soap, or cologne? Do you want to improve an old favorite?

Let Norda help you! Send for samples today. You will not be obligated, of course.



Norda *Essential Oil and Chemical Company, Inc.*
601 West 26th Street, New York 1, N. Y.

CHICAGO • LOS ANGELES • ST. PAUL • MONTREAL • TORONTO • HAVANA • MEXICO CITY • LONDON

is cast into thin slabs or solidified in a state of fine subdivision. It is then subjected to the action of air, preferably in the presence of light. After some time the material acquires properties which make it suitable for the purposes mentioned. The acid value of the finished material is usually of the order of 100-110.

Oxidation is at ordinary temperatures but as it is very slow, it can be accelerated by addition of oxygen-absorbing substances. If such material is mixed with a small proportion of turpentine and applied to wooden surfaces and allowed to dry, a glossy finish can be produced by polishing the film with a soft cloth. The surface is reputed to be neither fatty nor sticky and the gloss completely durable.

Oxidation of the metallic soap mass can also be accelerated by inclusion of small proportions of inorganic peroxides, or correspondingly smaller quantities of the benzoyl peroxide type. Organic peroxides are preferable as they are usually soluble in the soaps.

Lithium stearate and other lithium soaps have assumed great importance as components of lubricating grease. They are valuable as thickening agents in lubricants for use under heat and pressure, and also especially under low-temperature conditions. The low water solubility, together with the ability of the soaps to form high-molecular gels, are reasons for their success. Lead and antimony soaps have been used in extreme-pressure lubricants.

Rust-preventing compositions are an ideal field for metallic soap utilization, in combination with waxes and solvents. Preparations suitable for use on external and internal engine surfaces contain the following:

	Per cent
Butyl alcohol	10
Aluminum stearate	10
Triethanolamine	6.5
Lard oil	73.5

E. S. Lower, *Ind. Chemist* 23 (1947).

Polyglycerol Mixtures

Polyglycerol mixtures can be separated into their components by an alkylation procedure, followed by acetone. Pure diglycerol can be obtained from a polyglycerol mixture by this process. H. Wittcoff, J. R. Roach, and S. E. Miller, *J. Am. Chem. Soc.* 69, 2655-7 (1947).

Antioxidant Combinations

It was first shown in 1946 by Golumbic that a relationship exists between the oxidation-reduction potential and the antioxidant properties of a substance. The most effective antioxidants have been found to have a potential between 848 and 484 millivolts; above and below these limits the activity was small or entirely lacking. Although lard was the test fat, vegetable oil free of tocopherols would be expected to behave similarly. When the action of pairs of compounds was ex-

amined, many new synergistic combinations were found. As shown in the table, two phenolic inhibitors act synergistically, whereas previous to this, synergistic combinations were thought to be made up of a phenolic type plus an acidic type.

In each of the combinations the component of higher oxidation potential always fell within the range of effective inhibitors. The compound of lower oxidation potential presumably acts as a synergist. J. E. W. McConnell, *Am. Perfumer* 50, 346-8 (1947).

Inhibitor	Per cent	Antioxygenic Index at 75°C.
alpha-Tocopherol	0.02	2
1,4-Naphthohydroquinone	0.02	1.5
Above in combination	—	7*
alpha-Tocopherol	0.02	2
2-Methyl-1,4-naphthohydroquinone	0.10	1.3
Above in combination	—	6.5*
Chromane-5,6-quinone	0.10	17
2-Methyl-1,4-naphthohydroquinone	0.10	3.3
Above in combination	—	28*
Toluquinone	0.02	41
alpha-Tocopherol	0.02	1.5
Above in combination	—	84
Gallic acid	0.01	1.3
Tocopherol concentrate	0.04	2
Above in combination	—	5.3*
Naphthotocopherol	0.04	5.8
Ascorbic acid	0.10	1
Above in combination	—	8.2

* These samples were fresh when discontinued.

Solubilization of Oil

Increase in the concentration of a soap or other detergent does not increase the solubility of an oil above that in water until the critical concentration for formation of micelles is attained. Above this, the solubilization increases, in general more rapidly as the soap concentration increases. Salts increase the extent of solubilization; at low concentrations to an extent which may be accounted for by the increase in micellar area from depression of the critical concentration for micelle formation. At higher soap concentrations the increase in solubilization is greater than can be accounted for in this way. R. S. Stearns, H. Oppenheimer, E. Simon, and W. D. Harkins, *J. Chem. Physics* 15, 496-507 (1947).

Emulsifying Solvents

Fats and oils to be emulsified are mixed with an ester which contains at least one free carboxyl group, obtained from phthalic anhydride and a compound containing a free hy-

droxyl group. The solution of ester in oil is neutralized with a strong lye until the solution remains clear or becomes clear and gives a finely dispersed emulsion with water. Neutralization and emulsification may also be carried out simultaneously with a weak lye by adding a little alcohol. Aachener Chem. Werke Textilind. Etschenberg Kom. Ges. Belgian Patent No. 448,473; through *Chem. Abs.*

Esters as Antioxidants

The antioxidant properties of octyl, dodecyl, tetradecyl, hexadecyl, and octadecyl gallates in lard substrate were determined by the active oxygen method. The order of their effectiveness was about the same as that of the more active antioxidants, nordihydroquaric acid and gallic acid, as previously reported. These higher esters of gallic acid are readily soluble in fats, a factor of great importance in the commercial stabilization of fats. S. G. Morris, L. A. Kraekel, D. Hammer, J. S. Myers, and R. W. Riemschneider, *J. Am. Oil Chemists' Soc.* 24, 309-11 (1947).

COMPOUNDERS!!!

Investigate

Cowles

DRYMET*

DRYMET is commercial anhydrous sodium metasilicate. **DRYMET** contains no water—combined or uncombined. It is the most highly concentrated form of metasilicate on the market.

DRYMET yields more chemical value per pound than other detergent silicates—and it is priced to yield more chemical value per dollar.

DRYMET is readily soluble in all practical concentrations at all practical temperatures.

DRYMET has a total alkalinity as Na_2O of not less than 50%.

DRYMET yields a pH of 11.55 in a .06% solution. **DRYMET** will improve the detergent efficiency of practically every alkaline solution.

Write for **DRYMET** File Folder containing complete technical information and suggested formulations.

*Reg. U. S. Pat. Off.

DRYMET is available for immediate shipment.

The Cowles Detergent Company

HEAVY CHEMICALS DEPARTMENT

7018 EUCLID AVENUE

CLEVELAND 3, OHIO

PRODUCTION

Clinic

By E. G. THOMSEN, Ph.D.

AS ANOTHER year has begun, it is interesting to look back twelve months and read the prognostications regarding 1947 production problems. Very few of them had much degree of accuracy, yet we will go on at the beginning of a year making wrong predictions as long as time goes on. Many of the prophecies for 1947 led us to believe that this year would see the end of raw material and machinery shortages and lead us well along toward normal production. In this respect, many have been disillusioned. It is unfortunate because some manufacturers hesitate to undertake plant expansion under present unstable conditions and high prices. As low production volume is one of the very reasons that prices continue to mount, this hesitating attitude toward plant expansion is not healthy to business in general.

Many manufacturers looked forward to the replacement of obsolete or worn out equipment during the past year. Then, when they were faced with actualities of replacement or improvement, they delayed because of general conditions. Prices were high and deliveries poor. Workmanship was not of the pre-war quality; productivity per man was low; suppliers were not aggressive enough and the old equipment could be patched up to last until conditions improved. We know of quite a number of cases where these and similar reasons have held up much needed refitting or new installations. The net result has been underproduction.

The picture in the machinery and equipment field in our industries is not all dark, however. It is encouraging to note that machinery manufac-

turers are not standing by idly. They realize that, unless they perk up, there will come a time when they will have



to solicit business intensively. Numerous new catalogs and pamphlets are coming through to indicate that conditions will improve in 1948. We hope to cover many of these on this page in the months ahead.

Labor conditions also continue to be bothersome. We hear quite generally that not only have wages gone up but production per man has gone down to an even greater extent. One does not have to visit many plants, even the smaller ones, to realize that production men are not satisfied with the labor situation. Here again the picture is more hopeful. Workmen are realizing more generally the importance of increasing labor productivity. Some labor leaders are putting emphasis upon greater output. The factory laborer also feels the pinch of higher prices induced in part by the fallacy of spreading the work. Criticism of the building trades, particularly in this regard, is having its effect.

When we run into the above-

mentioned difficulties it is of some comfort to feel we are better off at least than the other fellow. Here are a few comments from a reader of this page in Australia.

"We in Australia are no longer permitted to spend dollars for American newspapers and trade publications so please send me clippings you may consider interesting to me. . . . You are acquainted with the world dollar market, and I predict a first-class depression will strike us unless America farms out dollars to us. . . . Only this afternoon one of our suppliers told us his business was off 25 per cent in 1947 and another 20 per cent decline for 1948 stared him in the face. . . . Tin plate is scarce, cardboard is unprocureable and glass bottles are manufactured only occasionally. The big glass furnaces were shut down six months because of labor difficulties. We are having more than our share of labor trouble and now we face nationalization of private banks. . . . Perhaps nationalization of the banks will improve matters but this scheme will eliminate incentive plans and stabilize living conditions. You people in America are the luckiest in the world. You have all the food, clothing and necessities you need but I wonder when the day will dawn that your production will exceed your internal demand for commodities."

Surely Australia is not as well off as we and Europe's deplorable condition need only be mentioned. It is our prediction that 1948 will be even a happier one for us who are fortunate enough to live here.

Improved Grease Blending

THE Marco Company, Wilmington, offers a continuous process for the manufacture of greases and blending of oils. It is claimed that, in addition to its being a continuous process that gives high output at low cost, superior quality and uniformity of product are obtained. Units from 1,000 gallons up to 3,500 gallons per hour are available. The main part of the process is the "Flowmaster Temperer." This piece of equipment operates under temperature control and blends, mills and homogenizes. The entire system is automatic and when set up will operate continuously for days.

Sargent's latest . . . **SOAP CHIP DRYER**



YOU will be interested in seeing two views of a recent installation of the latest SARGENT Dryer and Chilling Roll as set up and operating.

- Our engineers have developed a Roll and Dryer that delivers just what the Trade demands . . . **extremely thin, smooth chips!**
- The drives are of the variable speed control type. Designed for compactness and accessibility. The unit requires only the minimum of steam and power.
- Write to SARGENT today for complete information on this new machine.

C. G. SARGENT'S SONS CORPORATION • GRANITEVILLE, MASSACHUSETTS

Sorbitols

ATLAS POWDER COMPANY, Wilmington, continues to feature its two grades of sorbitols. These are "Sorbo," a 70 per cent aqueous water-white, non-odorous d-sorbitol and "Arlex," the commercial sorbitol solution. Since the sorbitol is a hexahydric alcohol, containing six hydroxyl groups, there is great opportunity to develop new products in the chemical research laboratory. Its main uses in unchanged form are as a conditioning agent and humectant in various industries. Among these are cosmetics, polishes, waxes and soaps.

Foam Control

IN the chemical literature, the silicones are gaining increasing space because of their numerous uses. Those particularly who use wetting agents often run into the foam problem especially when a foaming product is to be bottled on automatic bottling machines. The Dow-Corning Corporation, Midland, Michigan, is calling attention to its "DC Antifoam A," a silicone foam killer. This product, described in the pamphlet No. T 6-6 and available upon request, is used in very small quantities. It is pointed out that in a cream cologne containing a wetting agent, foam may be controlled with as little as 0.3 parts of DC Antifoam A per million parts of concentrate.

Soap Dispensers

AMPION CORPORATION, Long Island City, N. Y., is featuring the 10 year guarantee of their "Duo-dek" liquid soap dispenser. This dispenser is made from "Zamak" alloy which includes no iron or brass and therefore does not rust or corrode. The dispenser, delivers 8 drops of liquid soap through a vacuum controlled valve by pressing up the conical seat at the bottom. This is an adequate amount and economizes in its use. They also make a tilting type of dispenser that carries the same 10 year guarantee.

Unusual Adhesive

THOSE having adhesive difficulties with cellophane, foil, coated paper and similar substances may find a solution in "1711-R," a flexible adhesive developed by Swift & Company, Chi-

cago. It adheres to all surfaces, except metal to metal, provided one of the surfaces is moisture proof. Due to its prolonged tack, which lasts up to half a minute if thick enough, there is more time for assembly work than when using ordinary adhesives.

Electric Motor Supply Better

AN important part of any piece of equipment is the electric motor which drives it. Electric motors have been very difficult to obtain. A year's backlog in orders has been accumulated. The electric motor industry is completing a 75 million dollar expansion program and a more normal supply situation is expected in 1948 if sufficient steel is obtained. The industry has fostered also a standardization program which will increase production. The program, under study for ten years, includes motors from 1 H.P. to 200 H.P. The purposes of this standardization are to clearly define performance characteristics for the five basic motor designations, in order to aid the customer in his selection by marking motors meeting the specifications; to make motors from 58 different manufacturers interchangeable, beginning in 1948; and to have power companies generally accept the performance of standardized motors.

Used Equipment

THE Economy Equipment Company, of East Liverpool, Ohio, has sent us a very comprehensive revised list of used and new equipment. Several scarce items are included, which may be needed by readers of this page.

New Chemicals

TWO new chemicals of interest are Allyl starch and "detergent promoter." Allyl starch made by General Mills Research Laboratories, Minneapolis, is now in pilot plant production. This product is soluble in many organic solvents like alcohols, benzene, ketones, and esters. Among its probable uses are as a shellac substitute and as a synthetic coating. This may be interesting to liquid wax manufacturers and makers of floor seals. "Detergent promoter" is a new synthetic detergent developed by Wyandotte Chemicals Corporation, Wyandotte, Michigan. As is well

known, most wetting agents are not satisfactory for washing cotton and linen fabrics. It is claimed that this detergent is superior to soap for this purpose.

Announce New Pump

Announcement of a new, stainless steel pump intended primarily for use in chemical applications was made recently by Jabsco Pump Co., Beverly Hills, Calif. The new pump has but one moving part, a flexible impeller made of a neoprene compound, which was selected for its chemical inertness and wear resistance. The pump primes automatically, operating suction being in excess of 27" of mercury. The liquid provides automatic lubrication between the pump body and the impeller. The pump can be operated in either direction and mounted in any position without change in efficiency. Operating speeds range from 100 to 1750 rpm. Although larger and smaller sizes are scheduled for early development, the pump is available at the present time with provision for 1½" pipe connections only. List price is \$95 f.o.b. factory.

Bulletin on pH

A technical bulletin titled "pH . . . Its Measurement and Industrial Importance" was recently issued by Fisher Scientific Co., Pittsburgh, and Eimer and Amend, New York. The technical significance of pH, the symbol for hydrogen ion concentration, is explained and the advantages of pH control to industry are related. The booklet explains how pH is measured electrically and offers a page of typical applications of pH meters. The Beckman pH meter is explained in detail and a number of accessories are illustrated.

Brochure on Case Sealing

An up-to-date brochure, describing the various types of shipping containers, the adhesives required to seal each type successfully and a description of methods of sealing, was released during November by National Adhesives, New York. A number of helpful hints on preparing glues and stacking cases are offered in the 20-page booklet.



Confidentially, your best bet is Hardesty

It's no secret in the industry that Hardesty delivers the goods. We do not perform miracles but many times our knowledge and experience in fatty acids can help solve the most knotty production problems.

Hardesty products are made in various grades to meet the requirements of the chemical, textile, cosmetic, soap, rubber and other industries. Why not get acquainted with the Hardesty way of doing business now? You'll like our personalized service and we can show you with information and samples why it pays to keep in touch with Hardesty.

RED OIL • GLYCERINE • STEARIC ACID • WHITE
OLEINE • STEARINE PITCH • HYDROGENATED FATTY
ACIDS • ANIMAL AND VEGETABLE DISTILLED FATTY
ACIDS

**W.C.
HARDESTY**
COMPANY

41 East 42nd Street, New York 17,
New York. Factories: Dover, Ohio—
Los Angeles, Calif.—Toronto, Canada

Filter Press Bulletin

A new 16-page bulletin No. 202 describing filtering operations, materials of construction and five major filter press models, is offered by Valley Foundry & Machine Works, Inc., Fresno, Calif. The new hydraulic closing device developed by Valley engineers for use in connection with its own or other filter presses is described in detail. Said to be the latest type of hydraulic closing device in the field, the unit features finger-tip control and sure-sealing action.

New Katz Catalog Available

Announcement of availability of its new annual catalog and price list and a monthly market report was made late in November by Dr. Alexander Katz & Co., division of F. Ritter & Co., Los Angeles. Both catalog and monthly market reports will be sent upon request. The new catalog and price list is 4" wide by 9 $\frac{3}{4}$ " deep and contains 40 pages, plus cover. The company's full line of aromatic chemicals, essential oils, flavorings, food colors and related products is listed.

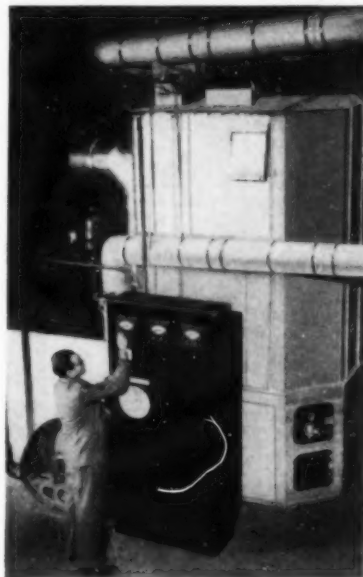
Booklet on Process Plants

A 24-page illustrated booklet entitled, "Complete Plants and Equipment for the Process Industries," has been issued as Bulletin No. 2204 by Blaw-Knox Co., Pittsburgh. Applications reviewed in the bulletin include continuous fat splitting by the Colgate-Emery process; the "Emersol" process for selective solvent separation of fatty acids; oil and fat hydrogenation; soy bean solvent extraction; fatty acid distillation; and a number of other chemical processes.

New Heat Transfer Unit

A new type of unit for applying heat to industrial processes at temperature levels somewhere between those of direct fire and steam has been developed by Bethlehem Foundry and Machine Co., Bethlehem, Pa. The unit, known as "Beth-Tec," makes use of a heat transfer medium, "Hi-Tec," a salt mixture developed by E. I. duPont de Nemours & Co., Wilmington. This salt mixture offers stability and, having an ex-

tremely low melting point, it is a liquid over a broad range of temperatures. The new unit is a completely automatic self-contained "package"



available for use by all industrial plants utilizing heat processing and should be useful in distillation set-ups for fatty acids and the manufacture of synthetic oils. Claims for the Beth-Tec are: There is no appreciable vapor pressure; degree of heat is easily controlled; co-efficient of heat transfer is good; and the possibility of toxic fumes or vapors is remote. The Beth-Tec unit has a vertical water tube type boiler. The initial units are to be fabricated from carbon steel and should be suitable for working temperatures up to 850°F.

New Odor Directory

More than 500 different types of odors have been listed in a catalog compiled by Ernest C. Crocker and Lloyd D. Henderson, Arthur D. Little, Inc., Cambridge, Mass. A four-component system is used by which aromas are classified in terms of four essences: "fragrance," as of flowers; "acidity," as of vinegar or camphor; "burntiness," as of tar and "caprylicness," the distinctive odor of such animals as goats or dogs, especially when wet. Every odor has a little of each of the four components so that it can be represented by a four-digit number, which indicates the intensities of the essences.

New Bobrick Dispenser

A new monel metal dispenser for liquid soaps was announced in December by Bobrick Manufacturing Corp., New York. The Bobrick "Model 12" is a heavy duty type for factories, public washrooms and institutions and has a highly polished metal surface which resists rust and corrosion. The new dispenser has the Bobrick 860 valve, concealed wall fastener, large hinged filler cap, unbreakable "eye" for checking liquid soap level, and can be attached with screws or plastic rubber adhesive, eliminating the need for drilling holes. A model No. 47 is also available for dispensing liquid soap in lather form.

Brochure on Ejectors

A new catalog, No. 1462, entitled "Steam Jet Ejectors," was released in December by C. H. Wheeler Manufacturing Co., Philadelphia. The catalog contains 36 pages and includes 30 sectional drawings, also flow diagrams, engineering data, installation guide, formulas, curves and tables. It covers the theory and operating characteristics of steam jet ejectors for all classes of vacuum service, including single, two, three, four and five stage types. Non-condensing and condensing types, with barometric inter-and-after condensers for vacuum requirements in chemical plants, oil refineries, power plants, etc., are fully covered. The booklet also contains information regarding steam jet vacuum refrigeration for water cooling requirements of air conditioning and process applications.

Felton Aromatics Catalog

Felton Chemical Co., Brooklyn, now has ready for distribution a new catalog "Aromatics by Felton." The catalog contains a comprehensive listing of aromatic and perfume materials, conveniently arranged according to usage, and defined under such headings as "aromatic chemicals," "essential oils," "terpeneless oils and concentrates," "perfume bases for extracts and toilet waters or for face powders and dusting powders," "cream lotions," etc.

PERFUMING MATERIALS

—at their best!

RESINOID
CISTUS
LABDANUM
STYRAX

Roure - Dupont, Inc.

ESSENTIAL OILS, AROMATIC CHEMICALS AND PERFUME BASES
GENERAL OFFICES

366 MADISON AVENUE, NEW YORK 17, N. Y.

CHICAGO BRANCH
510 NORTH DEARBORN ST.

LOS ANGELES BRANCH
5517 SUNSET BOULEVARD, HOLLYWOOD

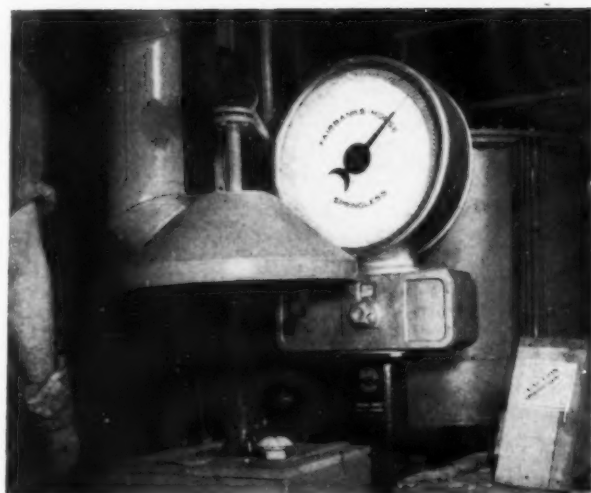
SOLE AGENTS IN UNITED STATES AND CANADA FOR
ROURE-BERTRAND FILS et JUSTIN DUPONT
GRASSE (A. M.) FRANCE ARGENTEUIL (S & O) FRANCE



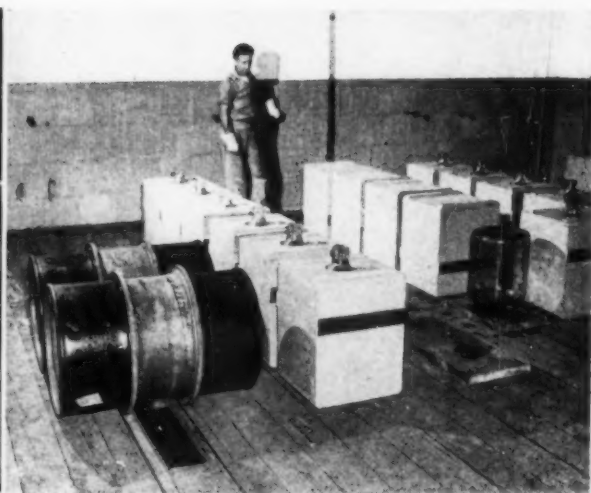
Faster "Turn-Around" on Container Refill

Returned carboys and drums are cleaned, washed and refilled in continuous operation at Heyden Chemical Corp. Ford, N. J., Plant.

At left — Carboy is cleaned with high pressure water jet, rinsed and dried with air blast — all on same rack. At right — weighing and filling are combined in one operation.



Close-up of one of the filling stations. If material being handled gives off fumes, they are collected in the hood and carried off by means of a suction fan.



Portion of the combined washing and drying racks. Note special color bands used to identify the contents. A red-bordered sticker certifies laboratory test.

Surface-Active Agent File

A file containing up-to-date information of 400 commercially available surface-active agents on 284 coded 5x8 inch cards is now available from Research Advisory Corporation, Columbus, Ohio. The coded file, known as the "Readco," presents information in a fashion which permits rapid choice of an agent for a particular purpose, and the company plans to revise the file once a year and present cards on new agents as they appear. Such information as general chemical and physical properties, solubility in water and in specific organic solvents, surface tension, spreading

coefficient, Draves sinking time, ionic type, chemical nature, uses and cost may be obtained by passing the sorting needle through the file.

Fatty Acid Fractionation

A mixture of fatty acids having 10-20 carbon atoms other than a mixture of marine-oil fatty acids, is dissolved in methanol or methyl ethyl ketone at room temperature. The solvent ratio is 0.5:1 to 6:1. The solution is cooled to -20°F . to precipitate the insoluble fraction, which is removed and washed with cold solvent. The Lummus Co. Brit. Patent No. 568,203.

New Consultant Directory

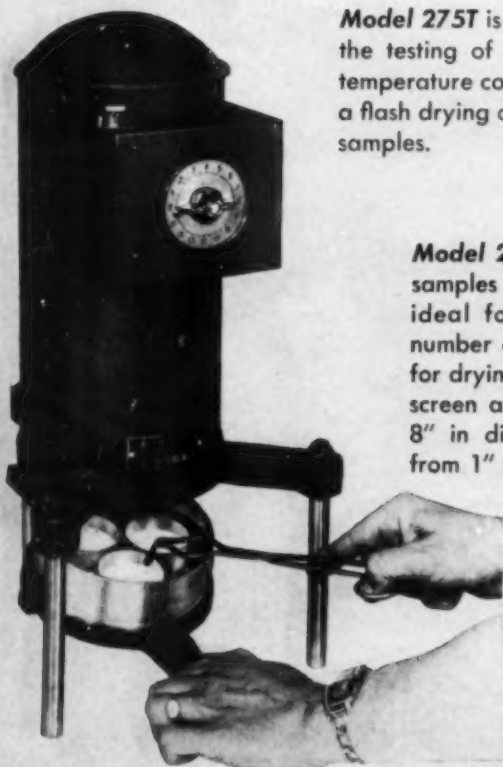
The Association of Consulting Chemists and Chemical Engineers, New York, recently issued the eleventh edition of their classified directory, 1947. The new edition is amended and enlarged to a total of 120 pages. It is divided into three sections—Section I, Key Section; Section II, Scope Sheets; Section III, Index, which includes a membership listed alphabetically and by geographical location. It is available without cost upon request, giving source of reference, name of individual and company connection, and complete address.

FLASH-DRY SAMPLES **TO DETERMINE** **MOISTURE CONTENT**



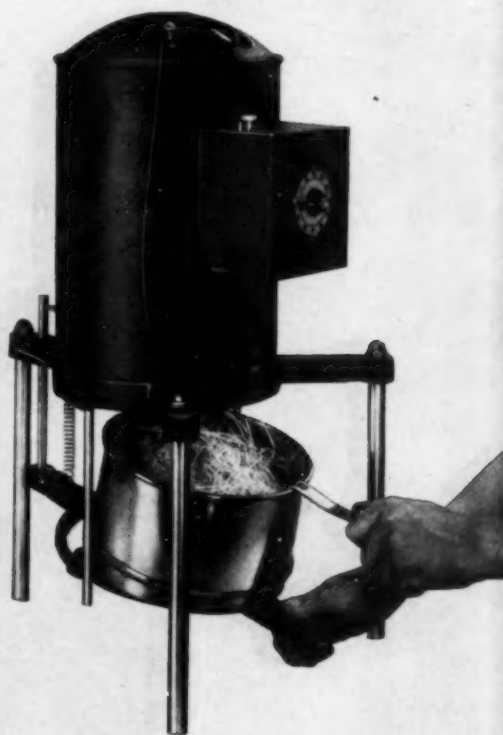
A complete line of Dietert-Detroit Moisture Tellers is available for the rapid, accurate moisture determination of such substances as chemicals, foods, fabrics, grains, sands, fuels, clays, semiliquids and others.

Model 275 is designed for materials not sensitive to drying temperatures. It has a drying pan 5" in diameter holding up to 100 gram samples.



Model 275T is used for all substances, the testing of which requires precise temperature control. It may be used as a flash drying oven for liquids or small samples.

Model 278T is used for bulky samples up to 500 grams. It is ideal for handling a large number of liquid samples and for drying materials in the wet screen analysis. The pans are 8" in diameter and may be from 1" to 4" in depth.



Write for descriptive folder and prices.

HARRY W. DIETERT CO.
9330 ROSELAWN AVE., DETROIT 4, MICHIGAN
SAND • MOLD • MOISTURE • SULFUR • CARBON

PRODUCTS AND PROCESSES

Brushless Shaving Cream

Brushless shaving cream is a combination of vanishing cream and superfatted soap base. A formula utilizing nonionic emulsifiers was developed to test the effect of polyols such as propylene glycol and glycerine on the product:

	Per cent
Stearic acid, triple pressed...	12.5
Sorbitan monostearate	2.5
Sorbitan monostearate polyoxyalkylene deriv.	1
White petrolatum	10
Polyol	5
Ammonia water, 28 per cent. .	2
Water to make	100

The sample made with propylene glycol as the polyol was firmer than that made with glycerine; otherwise the two were similar. The same formula was duplicated, using 15 per cent of mixed polyols. One sample contained 2.5 per cent of commercial sorbitol sirup plus 12 per cent of propylene glycol; another contained 2.5 per cent of glycerine. The glycerine mixture was firmest, the propylene glycol mixture gave the best gloss and pearl. The glycerine mixture produced a grainy cream.

It was concluded that the polyols, glycerine, propylene glycol, and sorbitol sirup, while all possess humectant and plasticizing properties, can replace each other only to a limited extent. A formula in balance with one polyol, may be completely unsuitable when substitution with another polyol is made. This is particularly true of liquid emulsions containing glyceryl monostearate and triethanolamine soap. *Perfumery & Essen. Oil Record* 38, 345-6 (1947).

Alkyl Aryl Sulfonates

Alkyl aryl sulfonates are prepared by chlorinating a mineral hydrocarbon wax, condensing the chlorinated wax with an aromatic hydrocarbon, and sulfonating and neutralizing the condensation product. Paraffin waxes ranging in melting point from 30 to 52°F. were melted, heated to 70-75°, and chlorinated at about 60-80° until the wax showed a gain in weight cor-

responding to 190-390 molecular per cent. The chlorinated wax was added to the aromatic single or multiple ring hydrocarbon in the ratio of 3 molecules of aromatic compound to each gram atom of combined chlorine in the chlorinated wax.

Granular anhydrous aluminum chloride in the ratio of 15 grams per each gram atom of combined chlorine was added to the aromatic compound before addition of the chlorinated wax. Sulfonation of the alkyl aryl hydrocarbon was with oleum, sulfuric acid, or chlorosulfonic acid. The sulfonated product was washed, neutralized by addition of 50 per cent caustic soda, and drum-dried. The final product is a useful detergent containing about 48 per cent of sodium sulfate. H. F. Reeves, Jr. to Wyandotte Chemicals Corp. U. S. Patent No. 2,422,926.

Soap in Greases

The thickening of lubricating greases by soaps is possible either by compaction of gelled lumps exhibiting only limited swelling, or by a much more efficient, homogeneous dispersion of the soap in colloidal micelles and secondary colloidal aggregations, forming the jelly phase. The texture of lubricating greases depends on the state of dispersion of the soap and is influenced markedly by the stability of the system. Formation of fibers is the result of recrystallization of the soap; these are indicative of a previously unstable or metastable system. They are of relatively little permanent value in thickening hydrocarbons, as compared with jelly or liquid-crystalline states.

The conditions which define a stable, homogeneous phase area occupied by the jelly also define to a large extent the conditions under which lubricating greases exhibit structural stability. C. H. Smith, *J. Am. Oil Chemists' Soc.* 24, 353-9 (1947).

Nonadecyl Sulfates

Straight-chain fatty acids, preferably of 6-11 carbon atoms, are converted into ketones, hydrogenated into

secondary alcohols, sulfated, and neutralized. The secondary nonadecyl sulfates and their salts are good detergents. E. E. Dreger and J. Ross, to Colgate-Palmolive-Peet Co., U. S. Patent No. 2,424,692.

Sulfonation Process

Surface-active agents are prepared by treating aliphatic organic compounds of at least 5-11 carbon atoms with gaseous or liquid sulfur dioxide and a halogen at -40 to 90°C. in the presence of ultra-violet light, extraction of the resulting sulfonyl halide with a selective solvent, hydrolysis, neutralization, and purification. J. Ross and D. James Potter, to Colgate-Palmolive-Peet Co. U. S. Patent No. 2,424,420.

Polymerized Glycol Esters

Polymerized glycol esters of stearic, oleic, and lauric acids are useful emulsifying agents. Being nonionic, they are not affected by hard water, salts, dilute acids, etc., which normally make the emulsification of oils and solvents extremely difficult. Since they do not react with quaternary ammonium compounds, or cation-active agents, they can be admixed with the latter to enhance their properties and lower the cost. *Rayon Textile Mo.* 28, 564 (1947).

Metallic Amine Complexes

Complexes formed between the higher alkyl amines and metallic salts constitute a series of organic compounds containing high percentages of heavy metals, and should be useful as insecticides and fungicides. Fabric treated with an emulsion of bis-hexadecylamino - zinc chloride showed resistance to attack by the mold *Chaetomium globosum* with 1.5 per cent of the complex on the sample cloth. Textile treatment is only one of the many uses to which these compounds might be put. It is quite possible that a number of the functions now performed by the heavy metal soaps can be better accomplished by the use of these complexes. A. W. Ralston, F. K. Broome, L. A. Harriman, and M. W. Marcoux, *J. Am. Oil Chemists' Soc.* 24, 307-8 (1947).

Unique Stability in NEW, IMPROVED Emery Elaines*



Low-titre soaps



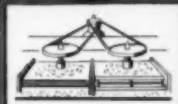
Metallic oleates
... Esters



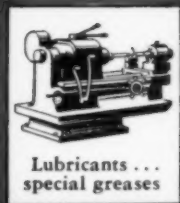
Emulsifier... Polishes,
disinfectants, oil and
wax emulsions



Typewriter ribbons
... carbon
papers



Flotation



Lubricants ...
special greases



Textile
processing

BETTER PERFORMANCE in EVERY USE

Repeated tests on all Emery Oleic
Acids and products manufactured
from them prove:

- Greater **STABILITY**
- High resistance to **OXIDATION**
- Least tendency toward **RANCIDITY**
- Superior "**ODOR**" characteristics
- Improved **HEAT STABILITY**
- Same properties imparted to finished
Products in many cases*

Regular Grades

O-18 Elaine	O-19 Low-titre Elaine
Titre.....8-11° C.	3-5° C.
Color (Lovibond)....30Y-8 Red, 1"	30Y-8 Red, 1"
Iodine Value.....90-93	91-95
Sap Value195-199	195-199
Unsap (max.).....3.0%	3.0%

Special Grades

O-20 White Elaine	O-21 Low-Titre White Elaine
Titre.....8-11° C.	3-5° C.
Color (Lovibond)....15Y-1.5 Red, 5/4"	15Y-1.5 Red, 5/4"
Iodine Value.....90-93	91-95
Sap Value197-201	197-201
Unsap (max.).....2.0%	2.0%

*Elaine is the trade mark for all Emery Oleic Acids



3002 Woolworth Building
NEW YORK 7, N. Y.

EMERY
INDUSTRIES, INC.

CAREW TOWER • CINCINNATI 2, OHIO

187 Ferry Street
LOWELL, MASSACHUSETTS

LIQUID FATTY ACIDS

401 N. Broad Street
PHILADELPHIA 8, PA.

STEARIC ACID • OLEIC ACID • ANIMAL AND VEGETABLE FATTY ACIDS • TWITCHELL PRODUCTS • PLASTICIZERS

**Conducted by
Lancaster, Allwine &
Rommel**

PATENTS, TRADEMARKS
AND COPYRIGHTS

402 Bowen Building,
Washington, D. C.

Complete copies of any patents or trade-mark registration reported below may be obtained by sending 50c for each copy desired to Lancaster, Allwine & Rommel.

No. 2,430,017, Mildewproofing Textiles, patented November 4, 1947 by Alva L. Houk, Philadelphia, Pa., assignor to Rohm & Haas Company, Philadelphia. The process of preparing mildew-resistant cellulosic materials which comprises impregnating a cellulosic material with a pentahalophenyl ester of a carboxylic acid in which the halogen is selected from the group consisting of chlorine and bromine.

No. 2,430,332, Composition and Method, patented November 4, 1947 by Hubert G. Guy, Pittsburgh, Pa. and Harry F. Dietz, Wilmington, Del., assignors to E. I. du Pont de Nemours & Company, Wilmington. The method which comprises exposing a plant to a lethal concentration of dimethyl cyanamidodithiocarbonate.

No. 2,430,342, Fungicide Compositions, patented November 4, 1947 by John Franklin Kagy, Long Beach, and Kenneth D. Sloop, Yorba, Linda, Calif., assignors to The Dow Chemical Company, Midland, Mich. A dust concentrate adapted to be dispersed in water to form agricultural fungicide spray compositions and consisting essentially of from 0.5 to 3.0 per cent by weight of oil deposited on finely-divided chloranil, and intimately mixed therewith with minimum amount of wetting agent required to accomplish the dispersion of the composition in water.

No. 2,430,576, Pest Control Composition and Method, patented November 11, 1947 by Clarence A. Littler, Maple Heights, Ohio, assignor to E. I. du Pont de Nemours & Company, Wilmington. A pest control composition in the form of a powder which normally is hydrophilic containing a toxicant and an amount of stearylamine sufficient to impart hydro-

phobic properties but less than about 7.5 per cent by weight of the composition.

No. 2,430,450, Antiseptic Urea Peroxide-Glycerol Solution, patented November 11, 1947 by Ethan Allan Brown, Boston, Mass., Manuel H. Gorin, Dallas, Tex., and Harold A. Abramson, Chevy Chase, Md. A non-aqueous antiseptic liquid composition, comprising substantially pure urea peroxide dissolved in glycerol.

No. 2,430,722, Derivatives of Chlorinated Quinones as Fungicides, patented November 11, 1947, by Elbert C. Ladd and Merlin P. Harvey, Passaic, N. J., assignors to United States Rubber Company, New York. A fungicidal composition comprising as an active ingredient a derivative of a chlorinated quinone selected from the group consisting of tetrachloro-parabenzoquinone and 2,3-dichloro-1,4-naphthoquinone in which a chlorine atom is substituted by the residue obtained by removing a hydrogen from the active methylene group of a compound selected from the group consisting of oxaloacetic esters, acetoacetic esters, malonic esters, malononitrile, and acyanoacetic esters, said fungicidal composition containing a carrier selected from the group consisting of powdered solid carriers, and water containing a dispersing agent.

No. 2,431,470, Ammonia Evolving Composition, patented November 25, 1947 by Walter Hugh Fawkes, Harefield, England. As a new article of manufacture, a compacted block of ammonia evolving material, composed of intimately intermingled particles of neutral ammonium carbonate, ammonium carbamate and crystalline sodium carbonate, in the proportions of about 80 per cent by weight of the ammonium salts to about 20 per cent by weight of the sodium salt, compressed at a pressure of between 250 to 600 lbs. per square inch.

New Laundry Technique

A description of centrifugal washing, a new technique in the laundry industry, and a discussion of the chemicals that are used, are featured in the December 1947 issue of *Monsanto Magazine*, house organ of Monsanto Chemical Co., St. Louis. The principle of centrifugal washing in the laundry is the use of the standard extractor for applying centrifugal force to remove both the dirt-con-

taining detergent solutions and the subsequent rinses. The principle is very simple: The standard extractors are fitted with special water spray nozzles in the cover. Four or more individual batches of laundry are introduced together with water at temperatures of no higher than 100°F to 120°F. Synthetic detergents have been found most effective particularly when blended with electrolyte salts such as tetra sodium pyrophosphate and sodium metasilicate. The claims for the centrifugal washing process are: better whiteness reflectance (97.5%), more dirt removed (99%), and, best of all, loss of tensile strength is cut in half (from 10% to 5% in a standard 20-washing test). Other advantages are that standard bluing and souring baths are eliminated, and the laundry man may use either hard or soft water. No longer needed is expensive water softening equipment. Furthermore, conventional methods wash large batches of clothing at one time and clothes are later re-sorted by tags into individual customer bundles. By being able to launder four or more batches in the time once needed for one, the laundryman employing the centrifugal washing technique can reduce the size of his batches and thus keep customers' bundles separate. Expensive resorting is no longer required.

Offers Refining Process

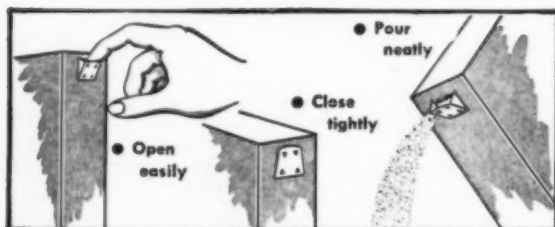
A new process for refining fatty oils, found successful by use in a number of soap plants, is now ready for market according to an announcement by Dr. Ilona Taussky, 124 East 24th St., New York, its inventor. It is a modification of the batch process for alkali refining which combines degumming, and refining in one operation. Some bleaching and deodorizing is said to occur during the process. Claims for the process also maintain that refining losses are almost entirely eliminated, oils thus treated are easier to bleach, hydrogenerate and deodorize, and show a marked improvement of color and odor stability in end products. Soybean, corn, peanut, coconut and cottonseed oils can be refined with the method for the edible oil trade. Low



Housewives dislike packages with messy torn tops—packages that are difficult to store on pantry shelves—packages that waste and spill contents during kitchen “measuring out.”

Yes, Mr. Packer, housewives prefer packages with SEAL-SPOUTS® because:

- They're easy to open — no messy torn tops.
- Products keep dry, fresh, clean.
- A teaspoon or a cupful can be “measured-out” without waste or spillage.
- They can be kept tightly closed against insects, dust and moisture.



If you package free flowing granular products, heed this consumer preference and you'll have “an edge” on competing brands.

SEAL-SPOUTS are automatically inserted in your own production line—without making a hole in the carton. The process is simple and speedy. Capitalize on this high consumer preference. Use SEAL-SPOUTS.

Send us one of your packages and we will put a SEAL-SPOUT in it.



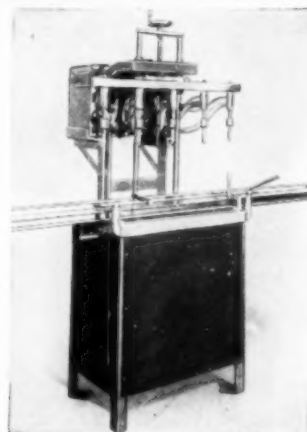
®T.M. Reg. U.S. Pat. Off.

NEW mrm fillers

INTRODUCED AT THE
NEW YORK CHEMICAL EXPOSITION

mrm GRAVITY CAN FILLER

FILLS 1- and 2-gallon cans, quarts or pints.



Recommended
for containers
not adaptable
to filling by
vacuum
or pressure

mrm MODEL “B”

Small Adaptable Vacuum Filler

4 - 6 SPOUTS

Mounted on Casters

Excellent fill-in for short runs or
small production requirements.



WRITE FOR DETAILS — NO OBLIGATION
Prompt Deliveries



- MODERATELY PRICED TO REACH ALL MANUFACTURERS
- NO SKILLED OPERATION OR MAINTENANCE NEEDED
- PARTS ARE SIMPLE—FEW—INEXPENSIVE

CONSULT US ON YOUR PACKAGING PROBLEMS

mrm CO. INC. Dept. SSC-18

custom-designed and built fillers and conveyors

191-193 Berry Street, Brooklyn 11, N. Y.
EVergreen 7-3936

grade tallow and olive oil foots were successfully handled for use in high-grade soap products. Non-distilled and single distilled fatty acids also can be bleached and stabilized by the method.

Dr. Taussky, well known consultant on fats, oils and soaps, states that the fatty acid removal from the raw oils proceeds "almost automatically" and side reactions, like oil entrainment, and emulsion tendency are completely avoided. Water washing treatments are reduced to a minimum. Equipment already on hand can be easily adapted. Further details and cost figures can be obtained from the inventor.

Offers New Synthetic

A new synthetic spray-dried detergent, "Miranol T", combining a sulfonated fatty acid amide derivative and an alkyl aryl sulfonate, was recently announced by Miranol Chemical Co., Milltown, N. J. The new anionic detergent and wetting agent takes the form of a white bead, has a pH of 7 in 1%

solution, and is readily soluble in hot or cold water, giving quick, profuse and stable foam. It consists of 25% synthetic detergent, the balance being sodium sulfate. It is said to be stable in acid, alkaline and hard water and in heavy metal salt solutions. The product is designed for the formulation of all-purpose household and industrial cleaners, laundry compounds, bubble baths, and shampoo products. The company has announced several formulations for the above applications of the new synthetic. Among the builders used are phosphates, sodium sesquicarbonate, bicarbonate of soda, sodium chloride and sulfate.

Drew Has New Esters

Commercial production of a new series of sulfonated fatty esters from vegetable sources was announced Dec. 23rd, by E. F. Drew & Co., Boonton, N. J. The new materials, known as "sulfonated estols" are a result of a combination of oil refining, distillation, hydrogenation and other chemical processing to free the

products from mineral oil, resinous substances, or proteinaceous and peptic impurities. The estols are particularly free from development of odor and color upon aging. Prices are expected to be lower than for conventional sulfonated oils or sulfonated tallow. Several grades are available.

New Coconut Oil Spec

"Standard 27" for coconut oil was recently issued by the Toilet Goods Association, New York. It defines coconut oil as the first oil obtained by separation from the kernels of the seeds of *Cocos nucifera* Linse, Family *Palmae*. The standard sets the following specifications: odor—characteristic with no suggestion of rancidity; color—to meet buyers specifications (AOCS Method No. Cc 13-45); solubility—soluble in carbon disulfide, chloroform, ether and petroleum benzin, insoluble in water; specific gravity—0.916 to 0.920 at 25°C./25°C.; saponification value—252-262; iodine value—8-10; acid value—6 max.; titer—20°C. to 24°C.

THE
"Sealed-Disc" Filter
In Action

**for the dependable, uniform
 clarity and brilliance of
 All Liquids**



A real space and time saver

**THIS
 COMPACT
 PORTABLE
 POSITIVE
 FILTER**

"Sealed Disc" Filters have proved their ability on liquid soaps, drugs, chemicals, cosmetic preparations, oils and other similar liquids. Compactness and portability assures ease and speed in handling—air-tight construction prevents leakage and even evaporation. Available in Stainless Steel, Monel, Brass, Bronze, etc., with or without pumps in sizes from 1 g.p.m. to thousands of g.p.h. Write for our bulletin # 745.

THE ALSOP ENGINEERING CORPORATION
 301 Green Street, Milldale, Connecticut

ALSOP ENGINEERING CORPORATION
 Filters, Filter Discs, Pumps, Tanks, Mixers, Agitators

See Advanced Model In Operation At Canner's Convention Exhibit



THE U.S. ROTARY VACUUM FILLER

FULLY AUTOMATIC

Built in 5 standard machine sizes to handle any liquid, light, heavy, syrupy, foamy—container sizes from ounces to gallons—speeds up to 300 containers per minute. Whatever your filling problem may be, consider the advanced features of the U. S. Rotary Vacuum Filler.

DRY CLEANERS

THE SANITAIR DOUBLE ACTION AUTOMATIC AIR CLEANER will clean all size containers from AGST size to wide mouth containers, requiring only a simple adjustment from one size to another. Can air-clean up to 150 Containers per minute.

THE E. Z. TWO-TUBE AIR CLEANER is semi-automatic and portable. Has air compressor unit. Air-cleans up to 50 containers per minute. When used with our Model B-2 Semi-Automatic Vacuum Filler, the combination will clean and fill 50 to 75 gross of containers per 8 hour day.

Write Us For Bulletins

U. S. BOTTLERS

Machinery Co.

4019 NORTH ROCKWELL STREET
CHICAGO 18, ILLINOIS

MANUFACTURERS OF

PUMPS
CAPERS
FILTERS
CONVEYORS
WASHERS & DRYERS
WASHERS
CORKERS
FILLERS

DREW COMPOUNDING ALKALIES

1. COMPOUNDING ALKALI (SYNTHETIC-SUDSING)

Medium pH (approx. 46% Na_2O); Low Moisture; Contains DREW'S WETSYN crystallized in the product to form unit composition; not a mechanical mixture; compatible with soap and other synthetics. Free-flowing — nice-looking product. Perfect for all high grade detergent compositions. Attractive price.

2. COMPOUNDING ALKALI T

Medium pH (approx. 46% Na_2O); Low Moisture. Oil buffered — unit crystallized — not a mechanical mixture. Compatible with all soap products and most synthetics; free-flowing, nice-looking product. Mixes easily. Lower Price.

Note:—These are unusual products and progressive Converters and Compounders quickly recognize their versatility and obvious usefulness. They are a MUST in the present market.



CHEMICAL SPECIALTIES DIVISION E. F. DREW & CO., INC.

15 East 26th Street, New York 10, N. Y.

Chicago: 919 North Michigan Ave.

Boston: Chamber of Commerce Bldg.

COCONUT OIL MARKET

(From Page 41)

16 major domestic mills mostly located in California. The soap makers now look to the domestic crushers for coconut oil, and the crushers are largely dependent upon the Philippine supply. Price has been the index of the pressure of the supply demand balance.

Domestic consumption of the crude oil in 1947 is at the rate of about 723,000,000 pounds, equivalent to approximately 580,000 tons of copra. This is the greatest rate of disappearance of record. Should it be attained for the entire year, the domestic crushers will have exceeded their pre-war average production by over 170 per cent. Domestic capacity is estimated at about 800,000 short tons.

The Philippines desire dollar balances and are willing to work for them; the crushers are operating at highest levels; and the soap makers want lauric acid oils. The price of the crude reflects this situation. It is un-

fortunate that a satisfactory price series for the crude cannot be developed. The limited imports of Manila in a de-controlled market signifies spotty quotations. The 1947 values as given in the table are no more than a guide to price. The price of copra is a sounder criterion at this time.

The pre-war price of copra was \$60 per long ton (delivered, San Francisco). In March 1947, price reached \$247.50 and copra crushers lost interest. Indeed, little buying is said to have occurred until August at which time copra sold for \$140. Heavy buying for inventory was then reported and price reached \$200 by mid-October. The record high of \$280 was attained December 2. There were few takers and price has been falling rapidly once more.

It is reported that the crushers have a two-month supply of copra on hand. With the present high level of Philippine production and the prospects of the Dutch materially augmenting the supply, the prospects of

the return of August prices in the near future are excellent.

— ♦ —
Saponins in water solution concentrate similarly at the water-air and at a water-benzene boundary. Surface tension and interfacial tension are lowered much more in acid than in alkaline solution. Saponins are found to consist of large molecules with molecular weight ranging up to 1640. When dissolved in water, they are dispersed into single molecules and ions, with no association into neutral or ionic micelles. R. Ruysen and R. Loos, *J. Colloid Sci.* 2, 428-51 (1947).

— ♦ —
Fats are treated with an aliphatic alcohol of 1 to 6 carbon atoms in the presence of a catalyst, usually an alcoholic solution of caustic soda, so that better yields of fatty acids and glycerol are obtained. Various methods are used to speed up the process and to recover the excess alcohol. Colgate-Palmolive-Peet Co. British Patent Nos. 587,523, 587,524, 587,530, 587,532, and 587,533.

CARNAUBA CANDELILLA

CRUDE AND REFINED

DISTRIBUTING & TRADING COMPANY, INC.

444 MADISON AVENUE • NEW YORK 22 • ELdorado 5-0776

Developments in Barrier Creams

SO MANY new substances, solvents, plasticizers and the like, have been introduced into industrial processing in the last few years, that the importance of barrier creams has increased rather than decreased. Occupational dermatitis is recognized as presenting a serious problem, or rather many serious problems, since many types of skin irritants must be dealt with.

Correct diagnosis of industrial dermatitis is of fundamental importance, as the attacks may simulate almost any type of skin lesion. A common source of error is the unsuspected presence of a fungal infection, either alone or superimposed on a true occupational dermatitis. Although fungal attacks are distressing, one of their chief dangers is their power of lowering the skin tolerance to other irritants and allergens, thus leading to further trouble. Routine examination for the presence of fungi in all cases of occupational dermatitis is often practiced.

Advantages of Soap

WHILE barrier creams play an important role, the advantages of simple but thorough washing with soap and water are often overlooked. It is essential to provide adequate washing facilities, together with a supply of suitable soap. A good industrial soap should be superfatted and should contain a small amount of a wetting agent to assist spread of the lather. The use of harsh abrasives should be strictly avoided.

Barrier Cream Formulation

FORMULATION of creams must be considered in relation to the nature of the irritant against which protection is sought. Where degreasing agents are to be encountered, a fatty base is indicated, or the pH of liquids dealt with may call for inclusion of acid or alkaline constituents.

A simple vanishing cream has chiefly a mechanical action, hindering absorption by filling up the pores of the skin with soap. This film of soap facilitates subsequent removal of irri-

tants simply by washing, and from this standpoint has much to recommend it. A simple basic formula is:

	Parts
Stearic acid	20
Soda ash	5
Glycerine	4-8
Water	to 100

Prepare by melting the stearic acid on a water bath in a vessel capable of holding several times the quantity to be made. Add the soda ash dissolved in the water, stir until effervescence has subsided, add glycerine, and let cool. A little alcohol present will give a cooling effect on the skin.

Fatty preparations have a similar mechanical action but a detergent in the cream facilitates subsequent removal, as in the following:

	Parts
White wax	10
Wool fat	5
Fatty alcohol sulfate	10
Soft paraffin	to 100

A small proportion of glyceryl monostearate can be incorporated with advantage. Addition of 5 per cent of latex promotes formation of a tough and flexible film when applied to the skin. Preparations of this type are of particular value for protection against prolonged contact with water.

"Invisible gloves" are designed to coat the skin with a continuous film. They are effective for short periods but have the disadvantage that perspiration tends to loosen the coating, although careful formulation can reduce this drawback. Two formulas for water-resistant types are:

	Parts
Gum benzoin	5
Beeswax	1.5
Lanolin	7.5
Gum mastic	2
Alcohol	to 100
Ethyl cellulose	4
Gum mastic	6
Castor oil	1-2
Acetone or benzol	to 100

Use of polyvinyl alcohol is worth investigation. Addition of sodium stearate and silicate has been suggested to improve resistance to penetration.

For a water-miscible compound a simple gum preparation is effective,

but more recently use of alginates, particularly in conjunction with an emulsifying base such as triethanolamine, has given excellent results. Creams made along these lines give more flexible films than those made with gums, and adhere better to the skin.

	Parts
Commercial alginate	50
Glycerine	5
Titanium dioxide	3
Water	to 100

Alternatively a modified vanishing cream base may be employed; this has advantages if a large proportion of powder is to be incorporated:

	Parts
Gum benzoin	5
Zinc oxide	10
Titanium dioxide	10
Alcohol	5
Cream base	to 100

Compounds designed to give protection against acids or alkalis by a neutralizing action include an acid such as boric or benzoic when alkaline working conditions must be met. If protection is sought against acids, aluminum or magnesium hydroxides are included.

When fungal infection is known to be present, the most effective treatment is with an organic mercurial preparation such as phenyl mercuric nitrate or acetate. Organic mercurials of this type are not so susceptible to loss of effectiveness as inorganic mercury compounds. The latter react with protein matter while in the former the mercury is tied up in a complex ion. A formula for a jelly is the following:

	Parts
Phenyl mercuric nitrate	1
Promulsin or other emulsifier	4
Glycerine	10
Water	to 100

The phenyl mercuric nitrate should be dissolved in water by gentle heat, then triturated with the emulsifying base, and allowed to stand before making up to volume.

The toxicity of phenyl mercuric compounds is very low. No cumulative effects have ever been observed from local application, and solutions of the mercury compound have even been used for intravenous injection as a bactericide. S. J. Hopkins, *Manufacturing Chemist* 18, 389-93 (1947).

SANITARY PRODUCTS

A SECTION OF SOAP

AS 1948 begins, we note the absence of certain leading manufacturers of household insecticides from the market. In short, they have quit the business, and reports are heard that other important factors plan to join them. These firms are mainly petroleum companies whose insect spray business has been strictly a small side line. Nevertheless, they have set a pattern which may spread to other firms if 1948 turns out to be the same sort of a household insecticide year as its two immediate predecessors. But let us hope that this will not be the case, and that those who lay the bad markets of 1946 and 1947 to an unusual combination of weather, temperature and other circumstances are proved to be right before next fall rolls around.



BLANKET exemptions for one year covering insecticides and fungicides, and rodenticides and herbicides from the provisions of the new Federal Insecticide, Fungicide and Rodenticide Act have been issued by the U. S. Department of Agriculture. All rodenticides and herbicides shipped prior to December 25, 1947, and which are effective for the purpose intended and not injurious to man when used as directed, are exempt for one year. All insecticides and fungicides shipped prior to June 25, 1948, and which meet the provisions of the Insecticide Act of 1910, are exempt. USDA also announced that no enforcement action against rodenticides and herbicides for which registration application was filed before December 25, 1947, will be taken solely because of a lack of formal registration.

The prompt action of USDA in this instance has a two-fold helpful effect. First, it relieves the worries of many manufacturers as to old stock on wholesalers' and dealers' shelves which may not meet the provisions of the new law.

And, second, it prevents what might have been a serious delay in getting much-needed economic poisons to market as an important part in the current food conservation program. The exemption should aid materially in streamlining the change over from the old law to the new without interfering with the steady flow of vitally necessary insecticides, rodenticides, *et al*, to users.



TO force higher quality into the rank and file of sanitary chemicals, cleaning specialties, and janitor supplies, the National Sanitary Supply Association is spearheading a movement which might eventually call for state legislation setting minimum quality standards. Although we heartily approve the quality motive of NSSA, we do not believe that legislation, state or otherwise, is the best means to attain the desired end. In fact, we feel that such legislation would stand the great chance of being declared unconstitutional, and if it did survive a test in the courts, would add many undesirable complications to doing business in the janitor supply field.

As an alternative to maintaining quality by law, we suggest the development and establishment of a list of new specifications and standards for sanitation and janitor chemical specialties worked out by NSSA in conjunction with the National Bureau of Standards, with other associations, and with state and federal government agencies which regularly purchase these products. Such specifications would in effect have the status of "government standards," and, we believe, could through a process of education eventually become the recognized standards of the industry. We agree wholly with the aims of NSSA, but disagree that what in effect could be a whole new maze of state laws is the way to accomplish these aims.

PENETRATION of DDT

By

**William R. Schmitz
and Mary B. Goette**

United States Public Health
Service,¹ Savannah, Georgia

into Wood Surfaces

SINCE DDT (2,2-bis(parachlorophenyl)-1,1,1-trichloroethane) is ordinarily a contact poison for flies and mosquitoes, better residual effectiveness could be expected if all of the DDT remained available for contact by insects. When a DDT solution or emulsion is applied to wood surfaces, the solvent penetrates into the wood and carries some of the DDT beneath the surface. The DDT which crystallizes below the top surface of the wood is doubtless unavailable biologically. This investigation was undertaken to evaluate some factors which affect the penetration of DDT into wood surfaces, viz. (1) solvent, (2) concentration of DDT in solution or emulsion, (3) type of wood, and (4) surface condition of the wood. The size of the spray droplets may be of importance in some situations; but when 4 ml. of spray were applied per square foot, as was done in these experiments, the droplets ran together very soon after wetting the surface, so that the size of drop made little difference. Drop sizes of 100 and 3000 microns were tested under these conditions without any differential effect. With less spray volume, drop size might be more important.

Procedure

AS A STANDARD for investigations on the penetration of DDT into wood surfaces, poplar wood was sprayed either with a 5-percent-DDT kerosene solution or an emulsion containing 5 percent DDT. The emulsion was prepared by diluting with six parts of water, on a volume basis, one part of a concentrate which consisted of

¹From Communicable Disease Center, Technical Development Division.

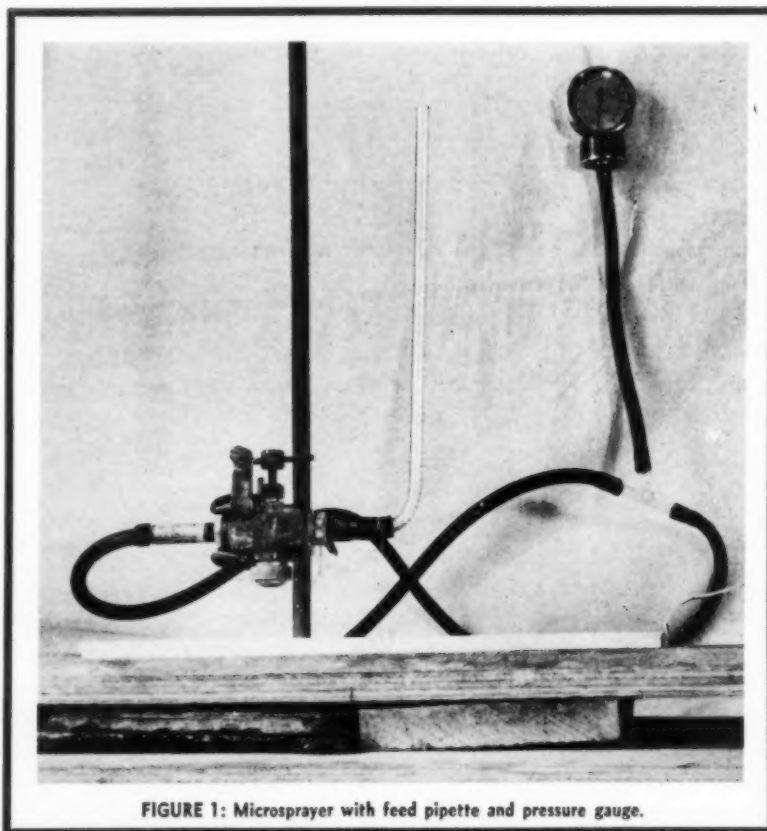


FIGURE 1: Microsprayer with feed pipette and pressure gauge.

35 grams DDT, 2 ml. "Triton X-100"², and sufficient xylene to make a total volume of 100 ml. The wood was cut into 3- by 12-inch panels and was sprayed by a microsprayer at the rate of 50 milligrams of DDT per panel or 200 milligrams of DDT per square foot. The microsprayer had a commercial siphon-type atomizing nozzle which mixed compressed air and liquid externally, and was set with the nozzle pointing downward, Figure 1. A five milliliter pipette which was bent at a right angle was attached to

²An emulsifier supplied by the Rohm & Haas Co., Philadelphia, Pa.

the liquid feed side of the nozzle, and the flow of liquid to the nozzle was by gravity. An adjustable screw permitted regulation of the flow of liquid from the pipette to the nozzle. Since the hydrostatic pressure of the column of liquid greatly affected the rate of discharge, it was necessary to keep the height of the liquid column always above the 2-milliliter mark on the pipette. In order to minimize the loss of drops from the panel, a small positive air pressure of 30 to 40 millimeters of mercury was used to atomize the liquid. The nozzle, which produced a conical-shaped spray, was

placed about an inch above the panel, and the panel was moved by hand on a platform which kept it always under the spray. This arrangement permitted each panel to be sprayed with exactly 50 milligrams of DDT in one milliliter of solution or emulsion.

After three or four days, the DDT was removed from the wood panels by scraping the surface with a small hand scraper. The thickness of the panel was measured at six points by a micrometer caliper, which had a ratchet stop and measured in steps of 1/10,000 of an inch. Each panel was measured both before and after the surface was scraped, and the depth of wood, which was removed, was determined by averaging the difference in readings of the micrometer caliper at each of the six points. In each test, 0.001 \pm 0.0005 of an inch of the wood surface was removed. An additional depth was then removed to make a total of 0.006 \pm 0.001 of an inch. Special care was taken to keep all the shavings of wood in a large enamel pan. When approximately 0.001 of an inch of the surface was removed, the shavings were placed directly into a 100-milliliter volumetric flask; but when additional surface was removed, the shavings were placed into a Soxhlet extractor, and the DDT was extracted with benzene for four hours. In each case, the scraper and pan were carefully washed with benzene to remove DDT, and the washings were added to the proper flask. In all tests conducted, at least quadruplicate panels were used.

The analytical procedure followed for analysis of DDT was a modification of the colorimetric methods of Schechter, et al. (6), and Bent (1).

Results

PENETRATION OF 5 PERCENT DDT IN KEROSENE AND 5-PERCENT-DDT EMULSION IN POPLAR WOOD: The penetration of 5 percent DDT in kerosene and 5-percent-DDT emulsion was determined at various depths of poplar wood. Panels were sprayed at the rate of 50 milligrams of DDT per panel, and approximately 0.001, 0.006, 0.010, 0.025, and 0.040 of an inch of the top surface was successively removed.

The amount of DDT recovered at each depth is shown graphically in Figure 2. From the graph, it is apparent that after about 0.01 of an inch of the top surface has been removed, a straight-line relationship exists between the recovery of DDT and the depth of wood to which the DDT penetrates. It was necessary to remove about 1/8 of an inch of the top surface to insure complete recovery of DDT. Better recovery of DDT was obtained at each depth from the emulsion than from the kerosene solution. Presumably, the DDT which penetrates deepest into the wood is concentrated in the larger pores of the wood, and the amount of DDT at a given depth is not uniform. It was shown by Clapp, et al. (2), that at 0.04 of an inch below the surface of plywood, a 60-minute exposure of adult *Anopheles quadrimaculatus* mosquitoes gave no noticeable mortality at 48 hours. The same authors have also pointed out that uniform coverage of DDT on the surface was necessary for high mortality.

The DDT which remained within 0.001 of an inch of the top surface was considered to include all which was available biologically; all DDT which penetrated further than 0.001 of an inch of the top surface was probably of no value biologically. About 38 percent of the DDT applied in an emulsion and about 30 percent of the DDT applied in a kerosene solution were deposited within 0.001 of

an inch of the top surface. Better recovery of DDT from the emulsion was probably due to a more rapid rate of DDT crystallization from the emulsion than from the kerosene solution. The recovery of DDT at various depths of poplar wood is summarized in Table I.

TABLE I
Recovery of DDT (per cent) at various depths of poplar wood which had been treated at the rate of 200 milligrams of DDT per square foot.

Approximate Depth of Wood Removed, inches	5% DDT in Kerosene (% Recovery)	5%-DDT Emulsion (%) Recovery)
0.001 \pm 0.005	30	38
0.006 \pm 0.001	60	73
0.010 \pm 0.001	65	81
0.025 \pm 0.001	70	86
0.040 \pm 0.001	74	88

Note: Percentages are based upon the amount of DDT theoretically applied.

EFFECT OF SOLVENT ON PENETRATION OF DDT INTO POPLAR WOOD: The penetration of DDT with various solvents into poplar wood was determined at about 0.001 and 0.006 of an inch of the top surface. A 5-percent-DDT emulsion was prepared according to the previously described formula substituting the desired solvent for xylene. Each panel was sprayed with one

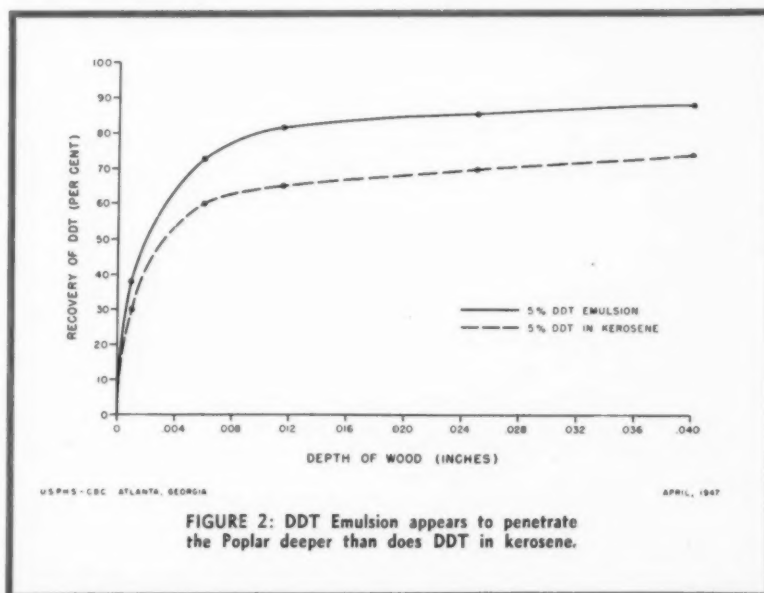


FIGURE 2: DDT Emulsion appears to penetrate the Poplar deeper than does DDT in kerosene.

milliliter of emulsion or 50 milligrams of DDT.

Of the solvents tested, xylene, which was the most volatile, gave the best recovery of DDT at both 0.001 and 0.006 of an inch of the top surface. Xylene, cyclohexanone, and "Solvesso No. 2"³ can be grouped as roughly four times more volatile (5) than tetralin, "PD-54C"⁴, and "Velsicol AR-50"⁵. The average recovery of DDT from the more volatile group of solvents was 32 percent at about 0.001 of an inch and 62 percent at about 0.006 of an inch as compared to an average recovery of DDT of 25 percent at about 0.001 of an inch and 40 percent at about 0.006 of an inch for the less volatile group of solvents. Although tetralin and Solvesso No. 2 were exceptions, there was an indication that the more volatile the solvent, the better the recovery of DDT that could be expected at the top surface. According to Fay, et al. (3), better initial toxicity to *Anopheles quadrimaculatus* was obtained with DDT that had been deposited from faster volatilizing solvents, such as xylene and Solvesso No. 2, than with slower volatilizing solvents, such as PD-54C and Velsicol AR-50. The recovery of DDT from different solvents is summarized in Table II.

EFFECT OF CONCENTRATION OF DDT IN A SOLUTION OR AN EMULSION ON PENETRATION INTO POPLAR WOOD: The penetration of DDT at various concentrations in a kerosene solution and a xylene emulsion was determined at about 0.001 and 0.006 of an inch of the top surface of poplar wood. A 1.25-percent, 2.5-percent, and a 5.0-percent DDT-in-kerosene solution and a 1.25-percent, 2.5-percent, 5.0-percent, 7.0-percent, and a 10.0-percent-DDT emulsion were prepared. Each panel was sprayed with 50 milligrams of DDT, but the volume of liquid ranged from 4 milliliters of 1.25 percent DDT solution or emulsion to 0.5 milliliters for 10.0-percent DDT emulsion.

³ A product of the Standard Oil Co. of New Jersey, New York, N. Y.

⁴ A product of the Socony Vacuum Corp., New York, N. Y.

⁵ A product of Velsicol Corp., Chicago, Ill.

TABLE II*

Recovery of DDT (per cent) from different solvents on poplar wood which had been treated at the rate of 200 milligrams of DDT per square foot, using a 5-per cent-DDT emulsion.

Solvent	Per Cent recovery at various depths of Poplar Wood	
	0.001 ± 0.0005 inches	0.006 ± 0.001 inches
Xylene	38	73
tetralin	35	47
Cyclohexanone	31	58
Solvesso No. 2	27	56
PD-544C	23	39
Velsicol AR-50	16	35

TABLE III*

Recovery of DDT (per cent) from different concentrations in a kerosene solution and a xylene emulsion on poplar wood which had been treated at the rate of 200 milligrams of DDT per square foot.

Physical Form	Concentration of DDT %	% recovery at various depths of Poplar Wood	
		0.001 ± 0.0005 inches	0.006 ± 0.001 inches
Emulsions	1.25	22	47
	2.5	32	59
	5.0	38	73
(Xylene-water)	7.0	41	65
	10.0	50	80
Solutions	1.25	29	33
	2.5	27	53
	5.0	30	60

TABLE IV*

Recovery of DDT (per cent) at about 0.001 and 0.006 of an inch of the top surface of different woods which had been treated at the rate of 200 milligrams of DDT per sq. foot.

Type of Wood	5 Per Cent DDT in Kerosene		5-Per Cent-DDT Emulsion	
	0.001" ± 0.0005"	0.006" ± 0.001"	0.001" ± 0.0005"	0.006" ± 0.001"
Oak, white	21	57	41	72
Pine, longleaf	17	32	35	67
Gum, red	34	64	33	63
Poplar, yellow	30	60	38	73
Ash	28	48	42	72
Cypress, southern	17	40	41	74
Pine, white	31	61	29	67

* Note: Percentages are based upon the amount of DDT theoretically applied.

In general, DDT solutions and emulsions that were more concentrated gave better recovery of DDT at about 0.001 and 0.006 of an inch than did the less concentrated solutions and emulsions. Particularly good recovery of DDT was obtained with the 10.0-percent-DDT emulsion; but at the application rate of 50 milligrams of DDT per panel, the volume of emulsion was not sufficient to give good coverage of the surface. On poplar wood panels, one milliliter of liquid gave the best coverage without danger of "run-off." The recovery of DDT at different concentrations in a kerosene solution and an emulsion are summarized in Table III.

PENETRATION OF DDT INTO DIFFERENT WOODS: The penetration of DDT in a 5-percent DDT-in-kerosene solution and a 5-percent DDT emulsion was determined at about 0.001 and 0.006 of an inch of the top surface of various woods. All of the woods had been air-dried and probably contained about 12 percent moisture. Panels of white oak, longleaf pine, red gum, yellow poplar, a light-weight ash, southern cypress, and white pine were prepared, and each was sprayed with 50 milligrams of DDT. The woods listed above are in decreasing order of hardness (4) and specific gravity, with white oak more than twice as hard and heavy as white pine. The number of growth rings per inch varied from 18 for longleaf pine to 9 for ash.

There appeared to be little cor-

relation between the physical properties of the woods and the recovery of DDT at about 0.001 and 0.006 of an inch of the top surface. The average recovery of DDT from all woods was 25 percent at about 0.001 of an inch and 52 percent at about 0.006 of an inch for the solution as compared to 37 percent at about 0.001 of an inch and 70 percent at about 0.006 of an inch for the emulsion. The penetration of DDT into the various woods was more consistent from the emulsion than from the solution. The recovery of DDT from different woods is summarized in Table IV.

EFFECT OF SURFACE CONDITION ON PENETRATION OF DDT INTO POPLAR WOOD: The penetration of DDT into poplar wood surfaces which had been wet with water was determined at approximately 0.001 and 0.006 of an inch of the top surface. Panels were sprayed with water at the rate of 1, 2, and 4 milliliters per panel, and then immediately sprayed with 5 percent DDT in kerosene and 5-percent-DDT emulsion at the rate of 50 milligrams of DDT per panel. Panels were also sprayed with 4 milliliters of water, and after drying for 15 minutes treated with DDT.

The recovery of DDT was not improved by spraying the panels with water and then immediately spraying with DDT. It was observed that some spray ran off the wet panels, and this fact may have decreased the recovery of DDT. Better recovery, however, was obtained from the panels which were sprayed with 4 milliliters of water and allowed to dry for 15 minutes before the application of DDT. Water which filled the pores of the wood evidently kept the DDT solution and emulsion from penetrating to the usual depth. The recovery of DDT from poplar wood which was wet with water is summarized in Table V.

Summary

THE penetration of a 5-percent DDT-in-kerosene solution and a 5-percent-DDT emulsion was determined at various depths of poplar wood. Approximately 30 percent of the DDT applied from a kerosene solution was deposited within 0.001 of an

TABLE V
Recovery of DDT (per cent) at about 0.001 and 0.006 of an inch of the top surface of poplar wood which had been sprayed with water and then with DDT at the rate of 200 milligrams per square foot.

Test Conditions	5-Per Cent-DDT in Kerosene		5-Per Cent-DDT Emulsion	
	0.001" \pm 0.0005"	0.006" \pm 0.001"	0.001" \pm 0.0005"	0.006" \pm 0.001"
1. Dry Surface	30	60	38	73
2. Sprayed with 1 milliliter of water and immediately sprayed with DDT	25	57	27	67
3. Sprayed with 2 milliliters of water and immediately sprayed with DDT	40	56	37	86
4. Sprayed with 4 milliliters of water and immediately sprayed with DDT	29	45	28	65
5. Sprayed with 4 milliliters of water and after 15 minutes, sprayed with DDT	47	70	51	93

Note: Percentages are based upon the amount of DDT theoretically applied.

inch of the top surface of poplar wood as compared to about 38 percent of the DDT applied from a xylene-emulsion. It was necessary to remove about $\frac{1}{8}$ of an inch of the surface of poplar wood to insure complete recovery of DDT.

The solvent used to make a DDT emulsion affected the penetration of DDT into poplar wood. Generally, better recovery of DDT was obtained with the more volatile group of solvents. Of the solvents tested, a xylene emulsion gave the best recovery of DDT. An increase in concentration of DDT in a solution or an emulsion,

when applied at the rate of 200 milligrams of DDT per square foot, gave better recovery of DDT. However, a 5-percent-DDT solution or emulsion gave better coverage on poplar wood surfaces.

The penetration of a 5-percent DDT-in-kerosene solution and 5-percent-DDT emulsion was determined on various woods. There was little correlation between the physical properties of the wood and the recovery of DDT.

Poplar wood which had been sprayed with water, and after 15 minutes was sprayed with DDT, gave better recovery of DDT than dry poplar wood.

In all tests, better recovery of DDT was obtained from a 5-percent-DDT xylene emulsion than from a 5-percent DDT-in-kerosene solution.

Literature Cited

- ¹ Bent, H. E.: Private Communication.
- ² Clapp, J. M., Fay, R. W., and Simmons, S. W., Pub. Health Rep., 62, 158-70 (1947).
- ³ Fay, R. W., Simmons, S. W., and Clapp, J. M., Pub. Health Rep., 62, 149-58 (1947).
- ⁴ Ivey, G. F., "The Physical Properties of Lumber," Hickory, N. C., The Southern Publishing Co., 1934.
- ⁵ Jordan, O., "The Technology of Solvents," New York, Chemical Publishing Co., 1937.
- ⁶ Schechter, M. S., Soloway, S. B., Hayes, B. A., and Haller, H. L., *Ind. Eng. Chem., Anal. Ed.*, 17, 704-9 (1945).

DDT and various other insecticides in protective coatings and paints will be discussed in two papers by Dr. S. S. Block, research engineer, Univ. Florida.

His first paper, on insecticides in protective coatings, read at NAIDM December meeting, will appear in February "Soap".



In each of these great centers of the Soap, Perfumery and Cosmetics industries there is a Chiris company, with a complete production and distribution service. These companies pool all the experience and 200 years of outstanding leadership Aromatic industries have made



technical resources which nearly in the World's Essential Oil and available to the House of CHIRIS.

ANTOINE CHIRIS Co., Inc.

119 WEST 57th STREET, NEW YORK 19

ETABLISSEMENTS ANTOINE CHIRIS
GRASSE — PARIS

ANTOINE CHIRIS, LTD.
LONDON

The Federal Trade Commission in Your Business

By John D. Conner*
General Council, NAIDM

AS A background for consideration of the Federal Trade Commission and the laws under which it operates, brief attention should be paid to the history of our present economic system. Prior to the seventeenth century, all business activity in England, consisting in many cases of a monopoly granted by the crown, was conducted under a strictly regulated guild system. The year 1603 witnessed the first break in this system when a court declared void the grant by Queen Elizabeth to one of her court favorites of the monopoly in the manufacture of playing cards. Shortly thereafter Parliament further restricted the power of the crown to grant a business monopoly by enactment of the Statute of Monopolies. The impetus of the industrial revolution completed the transition from an economy of government granted monopoly to one of free competitive enterprise.

Contemporaneously, the *laissez faire* doctrine was being propounded in America by Adam Smith in his "Wealth of Nations" and John Stuart Mill in his "Principals of Political Economy." Free and open competition was, of course, the cornerstone. It soon became apparent, however, that in practical operation this all-important factor of competition in the formula of *laissez faire* required some safeguard. The elimination or lessening of competition was generally accomplished by one or both of two patterns, namely: a combination or conspiracy among a

group to refrain from competing, or the use by one person of unfair means of competition against others in the industry.

The first attack upon these restraints of competition was the passage of the Sherman Antitrust Act in 1890. Experience with the enforcement of this law soon indicated the need for supplementation. The Sherman Act was effective as a weapon for dissolving a monopoly after that monopoly was developed, but it was not effective as a means of preventing such a development. It was to meet this need that the Federal Trade Commission Act was passed in 1914.

The powers of the Federal Trade Commission have steadily increased since its inception in 1914. It is against the second type of abuse mentioned above, namely unfair methods of competition, that the authority of the Commission is directed. The entire original act can be summarized by stating that it prohibits "unfair methods of competition."

The jurisdiction and authority of the Commission were extended further by the passage of the Clayton Act a little later in 1914. Again in 1936 the statutory authority of the Commission was broadened by the passage of the Robinson-Patman Act, which act amended section 2 of the Clayton Act by prohibiting discrimination in price between competing purchasers of commodities of like grade and quality under certain conditions. A further increase in the authority of the Com-

mission came with the passage of the Wheeler-Lea Act in 1938. This Act amended the original Trade Commission Law by giving to the Commission authority to prevent false advertising of foods, drugs, devices and cosmetics.

For our purposes we can summarize the purpose and authority of the Commission, somewhat at the expense of accuracy, by saying that its purpose is to assure the free interplay of opposing economic forces on what Congress has deemed to be an equitable basis. To accomplish this purpose the Commission has authority to prevent unfair methods of competition under the original act, to prevent discrimination under the Robinson-Patman Act, to prevent tying clause sales, leases and contracts, interlocking directorates, and intercorporate stock acquisitions under the Clayton Act and to prevent false advertising of food, drugs, devices and cosmetics under the Wheeler-Lea Act.

Let us now become more specific in applying these legislative provisions to your business. Insecticides have been subjected to a certain amount of scrutiny by the Commission. One manufacturer agreed to cease representing that his product was non-poisonous to humans, would not injure plants and would afford adequate protection for gardens, flowers, shrubs or plants against damage by insects. Another agreed to discontinue use of the phrases "Forever," "Rids Them," or "Never to Return" in connection with a contact insecticide. In another case the phrase

* Before Nat. Assoc. Insecticide and Disinfectant Mfgs., December 3, 1947, Baltimore, Md.

Avoid exaggeration, falsehood and deceptive "catchy" phrases

"So pure you can gargle it" was questioned. In other cases claims concerning the period of effectiveness, the ability to destroy larvae, and representations to the effect that a 100 per cent kill is effected, that all types of insects are killed, that the advertised product will keep the home free of insects and that the product is noncombustible and the safest insecticide, have been ordered discontinued. The Commission has also recently required manufacturers of aerosol bombs to discontinue certain claims which it considered unjustified.

Moth repellents have been involved in a number of proceedings before the Commission. Representations that moth balls of a competitor would not afford adequate protection to fabrics have been held by the Commission to be an unfair method of competition. Claims questioned in other cases have been to the effect that the method used has been approved by the United States Government, that the moth proofing is permanent, that it kills moths and their larvae in upholstery, that the moth proofing is life-time, that it makes the fabric inedible to moths, that it is moth repellent, that it affords complete protection for 12 months, that time, exposure or use cannot remove or weaken its mothproofing properties, that the products will not be affected by dry cleaning or wet washing, that the company maintains laboratories and top flight chemists where the products are tested, that the product is new, amazing or sensational, that the product is the only mothproofing compound on the market which is effective in preventing damage by moths, and that it will prevent the danger of reinfestation.

Manufacturers of floor wax have agreed to discontinue representing that their product is "non-slip," that it will last 5 to 7 times longer than

ordinary wax, that the wax is heavy duty and that it will withstand strain, exposure and unusual wear.

Claims made for antiseptics, disinfectants and germicides have likewise been questioned. Typical of such claims are statements that use of the product makes unnecessary the boiling of surgical instruments, that no other antiseptic or germicide is so powerful, and that the advertised product will kill all microorganisms, that it has been tested by the government. The majority of proceedings concerning this class of products has involved claims of disinfectant or antiseptic properties for other products such as soap, cleaning compounds, wall paint and hair dye and hair oil.

It should be stressed that the fact that the above claims have been prohibited for the products involved in these cases does not necessarily mean that similar claims are prohibited for all other products of that same class. The claim must be weighed against the efficacy of the product in each case.

WE have reviewed some of the substantive provisions of the Act as it is applied to your products. Let us now examine briefly some of the questions concerning Commission procedure. A case may come before the Commission in one of several different ways. It may arise upon a complaint of a competitor, a consumer or from other public sources, or the Commission may itself initiate the investigation. As a matter of policy the Commission will not undertake a proceeding unless it is felt that a public question is involved. If the complaint is based upon a printed or broadcast advertisement, the investigation is made by the Radio and Periodical Division by mail inquiries. If it is based upon other types of alleged unfair methods of competition, the investigation will be made by

an attorney in the office of the Chief Examiner.

The methods of investigation which the Commission is authorized by law to use may be separated into three types. The first method, and the one more frequently used, is that of correspondence or written answers to questionnaires. Under Section 6 of the Federal Trade Commission Act the Commission is given authority:

- "(a) To gather and compile information concerning, and to investigate from time to time the organization, business, conduct, practices, and management of any corporation engaged in commerce, * * *
- "(b) To require by general or special orders, corporations engaged in commerce, * * *, to file with the Commission in such form as the Commission may prescribe annual or special, or both annual and special reports or answers in writing to specific questions, furnishing to the Commission such information as it may require as to the organization, business, conduct, practices, management * * *"

It will be seen from these provisions that the power of the Commission to require the submission of written information is broad. There are but three limitations—first, the corporation must be engaged in interstate commerce; second, the firm to whom the inquiry is addressed must be a corporation, as that word is defined in the Act. Under this definition the term "corporation" includes most forms of business enterprise, but does not include a partnership, an individual, or a sole proprietorship. If your firm operates under one of these categories you have a legal right to disregard the written inquiry. The third qualification is that the information requested must relate to the organization, business, conduct, practices, and management of a corporation, or its relation to other corporations, partnerships, or individuals. The obligation of a corporation to submit information in response to these written questionnaires is not self-enforcing. By that I mean that there is no penalty attached to the refusal to submit such information. It should be pointed out however, that there is a penalty for failure to submit an "annual or special report" as distinguished from an informal questionnaire, but this penalty of \$100 per day does not start running until 30 days after formal notification

of default by the Commission. As a practical matter most firms do cooperate voluntarily with the Commission by submitting information in response to these written inquiries. Assume, however, that you have some reason for wishing to contest the authority of the Commission to require this specific information of you. You can under these conditions refuse to furnish the information at this stage without subjecting yourself to penalty.

Such refusal would in all probability bring into operation the second method of investigation which the Commission is authorized to use. Under Section 9 the Commission or its duly authorized agents are given "at all reasonable times access to, for the purpose of examination, and the right to copy any documentary evidence of any corporation being investigated or proceeded against." This power of visitation by Commission agents is not without limitation. The Commission early took a broad view of its authority under this section. In the early 1920's the Commission advised the American Tobacco Company—"The Commission understands this paragraph to mean that the Commission has unlimited right of access to the books and records of a corporation under investigation or being proceeded against, at all reasonable hours and to make copies therefrom." This view of unlimited access led to a decision by the Supreme Court in *FTC vs. American Tobacco Company*. Mr. Justice Holmes did not concur with this view of the Commission. He said:

"Anyone who respects the spirit as well as the letter of the Fourth Amendment would be loath to believe that Congress intended to authorize one of its subordinate agencies to * * * direct fishing expeditions into private papers on the possibility that they may disclose evidence of crime. * * * It is contrary to the first principles of justice to allow a search through all the respondent's records, relevant or irrelevant, in the hope that something will turn up." (264 U. S. 298, 44 S. Ct. 336).

This decision as well as others, has made clear that the Commission's visitatorial powers under this section are limited to records and correspondence that are relevant to the matter under investigation. In fairness to the Commission it should be stated that the examiners of the Commission ordinarily limit their

requests to such records or correspondence. As in the case of answers to questionnaires and correspondence, this method of obtaining information is not self-executing. There is no penalty attached to refusal at this point to furnish the information required.

Refusal to make available to the investigator the information would in all likelihood then lead to use of the third method of investigation which is authorized by law. Section 9 provides:

"The Commission shall have power to require by subpoena the attendance and testimony of witnesses and the production of all such documentary evidence relating to any matter under investigation. * * * And in case of disobedience to a subpoena the Commission may invoke the aid of any court in the United States in requiring the attendance and testimony of witnesses and the production of documentary evidence."

The material or testimony which the Commission has the legal right to secure under power of subpoena is subject to the same limitations imposed by the law and the courts in the case of investigation by visitation. In some cases there is the possibility that the information furnished may tend to incriminate a person or subject him to a penalty. The law recognizes this possibility and provides

"* * * no natural person shall be prosecuted or subjected to any penalty or forfeiture for or on account of any transaction, matter, or thing concerning which he may testify or produce evidence, documentary or otherwise, before the Commission in obedience to a subpoena issued by it: * * *"

It is important to note that if a person intends to rely upon this claim of immunity he must not furnish the incriminating evidence through correspondence or to an examiner unless a subpoena for such information is issued and served upon him. It is only under these conditions that the immunity attaches.

The Commission in case of disobedience to a subpoena issued by it,

has the right through application to the United States District Courts, to require any corporation or other person to appear before the Commission or to produce the documentary evidence so requested. It is at this point that the reasonableness of the information or material requested may be legally questioned and determined by the Court.

IF the investigation indicates that there has been a violation, the Commission has three alternatives. First, it may dispose of the matter by requiring the respondent to sign a stipulation as to the facts constituting the violation and an agreement to cease and desist from the practices as set forth in the stipulation; secondly, the Commission may issue a formal complaint and proceed to hearing and order. The third alternative, and one which seems to be coming into more frequent use in these cases where the practices complained of are rather general in the industry, is to dispose of the matter through a trade practice conference. This procedure, although it has no specific statutory authorization, developed early in the Commission's history. It is aimed at the elimination of unfair trade practices by the development of trade practice rules through the cooperative efforts of the industry and the Commission. The primary purpose of these rules is to restate the requirements of the law with specific reference to the problems of the industry involved. It is the usual practice for the Commission to then ask that each firm in the industry subscribe to these rules. Compliance with the rules is, however, voluntary regardless of whether the firm has subscribed to them. In case of violation, the Commission attempts to secure compliance by charging violation of the basic laws upon which the trade practice rule was premised, rather than charging violation of the specific rule.

(Turn to Page 165)

Each claim weighed against efficacy of particular product under study

NEW CHEMICAL

Hooker Research Presents...



PHENYL ISOCYANATE (phenyl carbonimide)

DESCRIPTION:

Phenyl Isocyanate is a pungent, lachrymatory, almost water white liquid.

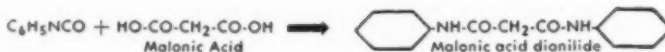
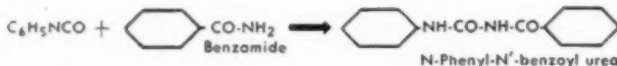
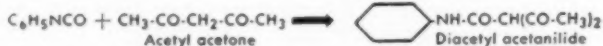
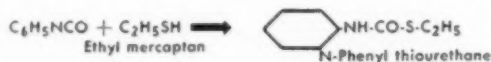
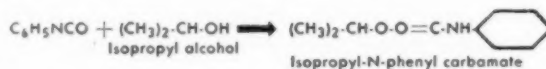
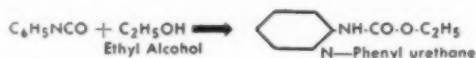
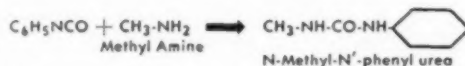
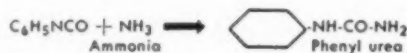
PHYSICAL DATA:

Empirical Formula C_6H_5NCO
Molecular Weight 119.12
Sp. Gravity, 15.5°/15.5°C 1.101
Refractive Index, n₂₀/D 1.535
Freezing Point -33°C
Boiling Point 162°C
Vapor Pressure, 100°C 108 mm
Flash point (closed cup) 63°C

SUGGESTED USES:

As a versatile intermediate for chemical synthesis, it has many interesting possibilities in the manufacture of alkyd resins, textile finishing agents, herbicides and other as yet undiscovered products. Among the various classes of compounds that might be produced thru phenyl isocyanate are: other isocyanates, ureas, anilides, dianilides, urethanes, thiourethanes, carbamates, and thiocarbamates.

SOME TYPICAL REACTIONS of Phenyl Isocyanate



For more technical information, write on your company letterhead for Data Sheet No. 372. Limited sample quantities of this product are available for experimental work.

**HOOKEE
ELECTROCHEMICAL
COMPANY**

Buffalo Ave. & Union St., Niagara Falls, N. Y.
New York, N. Y. Wilmington, Calif. Tacoma, Wash.

**HOOKEE
CHEMICALS**

Caustic Soda Muriatic Acid Sodium Sulfide Paradichlorobenzene Chlorine Sodium Sulfhydrylate

ANTU *the lethal dose - - -*

By Albert R. Latven,

Aaron B. Sloane

and James C. Munch*

Munch Research Laboratories, Inc.

Seasonal variations in lethal dose high

as fifty times for commercial products.

Need to express potency of commercial

brands in terms of reference standard

THE term "Lethal Dose" in reference to specific toxicity has been bandied about unnecessarily in various quarters for some time. Just what does it mean and what is its significance? ANTU has been generally conceded to possess an LD₅₀ of about 6 mg/kg in rats; similarly, the LD₅₀ of squill hovers about 600 mg/kg. Does this mean that ANTU when used as a raticide is one hundred times more potent than squill? Does it mean that ANTU will destroy 100 rats to every rat killed by squill, or does it mean that ANTU will destroy rats 100 times faster than squill? Obviously the answer is in the negative for each of the questions. Then just what does the "Lethal Dose" signify? To add more confusion to the picture, one laboratory has reported the ANTU LD₅₀ to be 35 mg/kg, another to be 6 mg/kg, and another to be 50 mg/kg. Our own laboratory has shown it to be possible to obtain a value of 260 mg/kg. The accuracy of these reported results is beyond dispute, having been conducted by critical investigators. However, the great variation in reported Lethal Dose leads an uncritical observer to suspect the presence of almost any lethal dose, that ANTU does not possess a lethal dose, but rather lethal doses! It is the purpose of this discussion to outline the many factors capable of inducing variations in results and to suggest means whereby these may be overcome since this is the first essential of any bioassay procedure.

Scientifically, the term "Lethal

Dose" as it occurs in the literature in reference to various products, has no meaning unless properly qualified. So many factors are capable of varying the results obtained that it is not at all surprising that divergent data have been reported. Although it is almost impossible to set up uniform conditions in all laboratories, the extent of the variations should be recognized and thoughtfully applied in considering the significance of laboratory studies.

At this point it is apropos to review briefly the historical development of lethal dose determinations. It was not so long ago that various authors used the term to indicate that quantity of a material tested under unstated conditions at unknown concentrations and by unrevealed methods of administration on unrecorded numbers of animals of one sex or the other (or both?) to produce death in an unspecified percentage of test animals. It was at least customary to indicate the animal on which the test was made. The first step toward clarifying the term appears to have been the use of the term "Minimum Lethal Dose" although this was used in various ways, to suggest the quantity killing 1 per cent, or 10 per cent, or 50 per cent, or some unstated percentage up to and including 100 per cent of the unrecorded number of animals tested. The next step, resulting from studies by Shackell in the United States and Trevan in England, showed that the relationship between increasing doses of a drug and increasing degrees of response (death or other types of activity being determined) followed an S-curve (sigmoid curve). Trevan stressed the

necessity, therefore, of expressing results at a definite intensity of effect, and suggested the "Median Lethal Dose," defined from the S-curve as that quantity of material producing the specified effect in one half of the test animals, being referred to as the "LD₅₀ per cent." This concept was further amplified by the authors. Since the accuracy of any single determination is obviously dependent upon the number of animals used in the investigation, it was suggested that the number of animals used for the determination of this value might be indicated as a prefix in the expression; for example if 65 animals were used in a test which revealed that the administration by mouth to rats caused the death of 50 per cent of the animals following a dose of 6 mg/kg, this information could be written in condensed form as ₆₅LD₅₀ per cent oral rats, 6 mg/kg. It is apparent that results stated in this fashion not only present the data obtained but also demonstrate the extent of the effort and accuracy involved.

In conducting bioassays of various products, attention has been directed to the LD₅₀ per cent value as most informative from a laboratory standpoint. However, from a practical standpoint it is also desirable to know that quantity of material capable of killing 90 per cent, or 95 per cent, or 99 per cent, or "all" of the test animals; also that quantity killing "none" or 1 per cent, or 10 per cent. This led to a series of studies on various products, to evaluate 2 materials by comparing the ratio between the LD₀ per cent, and the LD₁₀₀ per cent

* Before the National Association Insecticide and Disinfectant Manufacturers, Baltimore, December 2, 1947.



Maybe there's a point here about profits for you

Not many people "drank" tomatoes in 1928, for tomato juice was practically unknown.

But today "drinking tomatoes" is a big business, totaling an annual pack of more than 30 million cases.

How come?

Because of two improvements in canning tomato juice, made by American Can Company.

And just possibly Canco can find—through its many resources and 47 years of package improvement—hidden and extra profits in *your* business, too.

AMERICAN CAN COMPANY



New York • Chicago • San Francisco



values for each. If the products were chemically analogous and if the curves were statistically parallel, it was assumed that the mechanism of toxic action was substantially identical. If the curves were not parallel, then it is obvious that the mechanisms involved are different and the comparisons should not be made except at a median level, represented by the LD₅₀ per cent. One further point must be mentioned; that is, an adequate number of animals must be studied at each of several dosage levels in order that the LD₅₀ per cent value may be interpolated; and that the LD₅₀ per cent value cannot be obtained by adding together the LD₀ per cent and the LD₁₀₀ per cent values, and dividing by 2 (!). Fortunately, experience with these methods of interpreting data has shown that between the LD₃₀ per cent and the LD₈₀ per cent values, the S-curve approaches very nearly to a straight line for most drugs. This permits comparison of toxicity of two analogous preparations at any level between these levels of response, although it is preferable to work at the LD₅₀ per cent level in order to permit comparison of such values with those of compounds of a different nature.

It has been recognized by many investigators that various factors influence the effective or the lethal dose of a substance: these would include method of administration, age, weight, sex; altitude, temperature, humidity, barometric pressure, diet and other environmental factors in various laboratories, as well as the extremely important but frequently ignored factors of strain, and source of species of animals. Unfortunately not all "albino" rats are identical by any means; strains may be as divergent as the black rat is from the brown rat. It should be obvious that homogeneity of strain does not manifest itself by any single characteristic such as the albino gene. It is important therefore that the source or strain of the animal be stated in order to establish the genetic characteristics of the animal used. The confusion in reports of "Lethal Dose" of various substances appears to be related to lack of control of many of these factors, or to lack of reporting these specific details of test. In our detailed investiga-

tions of the toxicity of ANTU and in our attempts to develop antidotes for it in various species of animals, the importance of establishing uniform, specified methods of procedure has been emphasized, and we feel that the variations in the "Lethal Dose" of ANTU reported in scientific literature by various investigators throughout the world are due to varying conditions in the determination of toxicity.

FOLLOWING oral administration of ANTU by stomach tube to wild Norway rats, Richter reported an LD₅₀ per cent of 7 mg/kg. Byerrum added ANTU to Purina Lab Chow and tested 3 to 4-month old Sprague-Dawley rats weighing 200 grams by feeding such diet, obtaining an LD₅₀ per cent value of about 6.5 mg/kg. Smith and McClosky administered ANTU in acacia suspension to Wistar strain albino rats of both sexes, weighing 125 to 200 grams, kept on a diet of Purina Dog Chow and obtained an LD₅₀ per cent response at 35 mg/kg. Hüter administered ANTU to laboratory and wild rats by stomach tube and reported a lethal dose of 50 mg/kg. Other reports usually quote one or more of these values, so the literature suggests that the LD₅₀ per cent value orally to rats is between 6.5 and 50 mg/kg. of the samples of ANTU used, depending upon the particular circumstances under which the determinations were conducted.

Similar ranges of data have been reported following intraperitoneal administration of ANTU. Richter gave olive oil suspensions intraperitoneally in doses of 10cc/kg to wild Norway rats of different weight ranges of both sexes, finding the LD₅₀ per cent value for sucklings weighing under 50 grams to be 58 mg/kg; weanlings weighing 51 to 100 grams to be 43 mg/kg; young rats between 101 and 125 grams showed a value of 22 mg/kg; between 126 and 150 grams of 18 mg/kg; 151 to 200 grams, 16 mg/kg; young adult rats weighing 201 to 300 grams showed 8.1 mg/kg; adults weighing 301 to 400 grams showed 7.7 mg/kg and adults weighing 401 to 546 grams showed an LD₅₀ per cent value of 6.2 mg/kg. This suggests marked changes in LD₅₀ per

cent values in both sexes, which were combined in this report. However, when the actual dose of ANTU is determined, based on the average body weights on rats in each group, these values are found to be 2.3, 3.5, 2.5, 2.5, 2.7, 2.1, 2.7 and 2.8 mg of ANTU per rat in each of the weight groups respectively. These assays were carried out on the rats weighing over 200 grams during a year and a half, between January 1944 and June 1945, with no seasonal variation being noted; assays on lighter rats were conducted during April, May and June 1945. DuBois and associates reported intraperitoneal injections of propylene glycol solutions of ANTU to adult Sprague-Dawley rats showing an LD₅₀ per cent value of approximately 5.0 mg/kg.

In these investigations a strain of Blaine-Wistar albino rats was used throughout the entire study. All animals were obtained from the same breeder who had maintained the same stock diet for a number of years and on receipt in this laboratory all rats were continued on a diet of Purina Fox Chow. All factors were maintained as uniform as possible. Suspensions of a reference standard recrystallized ANTU were used from the same lot of material, and tests made at frequent intervals during each month of the study. Suspensions were prepared with tragacanth, all rats were weighed and doses administered from a Luer syringe directly into the stomach in the same manner throughout the study. While some data were obtained on male rats, this report deals exclusively with the more extensive investigations on female rats weighing from 100 to 125 grams.

Two general types of ANTU preparations were investigated: recrystallized "standard" and commercial samples. As prepared commercially, ANTU is a gray powder varying in color from dull green to dull purple and possesses varying degrees of odor; since it is recognized that such preparations contain foreign substances in different quantities, it is expected that the toxicity of such preparations would be lower than pure alphanaphthylthiourea in proportion to the percentage of foreign substances present. It is

MACKENZIE DETERGENTS

Technical Grade Chemicals

1. Sodium Metasilicate-Pentahydrate.
2. Poly-Phos
A Super Poly-Phosphate
3. Sodium Sulphate (Glauber's Salts)
Anhydrous

Synthetic Soap Powders

1. SPRAY DRIED (Bead Form). Synthetic Organic Detergents with polyphosphates. A COMPLETE PRODUCT ready for packaging.
2. Granular (dense) Synthetic Organic Detergent for Wool Scouring and other industrial uses.

MIXED DETERGENTS

Metaplus

Mild general household cleaner for painted surfaces. No wiping or rinsing required.

Dishwashing Compound

(Pink or White) Built to government specifications for Machine Dishwashing.

Hand Dishwashing Compound

With or without special GERMICIDE. Requires no wiping. When germicide is included, dishes are sanitized. Germicide is non-toxic, odorless, and tasteless.

Streakless Car Wash

A new product for washing cars, buses, trucks, etc. Will not streak. No wiping necessary.

Concentrated Soap Powder

50% less water than regular soap powders. For laundries, institutions, laundrettes, home laundering.

Driveway Cleaner

For cement or wood floors, grease pits, kitchen floors, meat packing plants, etc.

As basic manufacturers of cleaning chemicals, we have facilities for producing special cleansers for any particular purpose.

MACKENZIE LABORATORIES, Inc.

Front and Yarnall Streets, Chester, Pa.

unfortunate that adequate chemical methods are not available to determine the percentage of these foreign impurities present; consequently, biological tests must be applied. However, as in any type of analysis, a basis for comparison must first be established in order to obtain interpretable data. The obvious base in this instance is a sample of pure, recrystallized ANTU, which is a white powder almost devoid of any odor whatsoever.

Throughout the study reported herein, the toxicity of the recrystallized ANTU "standard" was determined concomitantly with commercial preparations; plots of the mortalities following various doses of each of the preparations were statistically parallel, indicating similar mechanisms of action. Further, it was possible to express the toxicity of the commercial preparations in terms of the reference standard which, as will be seen, remained constant regardless of the fluctuations occurring in the absolute toxicity values.

IN a series of tests conducted under identical conditions between October 31, 1946 and October 9, 1947 on the recrystallized ANTU laboratory standard, the LD₅₀ per cent values ranged from 8 mg/kg to 190 mg/kg. The average values in 17 assays are shown in Table I, with the dates of each assay. It may be noted that there is a progressive increase in value from 8 mg/kg in October to 190 mg/kg in January, followed by a decrease to 22 mg/kg in July and 16 mg/kg in October. Similar studies on commercial ANTU preparations showed an increase from 5 mg/kg in September 1946 to 8 to 17 mg/kg in October; 9 to 22 mg/kg in November; 48 to 150 mg/kg in December; 145 to 260 mg/kg in January; 70 to 130 mg/kg in March and 28 mg/kg in July. These results showed a curve of increasing and decreasing LD₅₀ per cent values very similar to a normal frequency curve for the commercial ANTU products, which was parallel to the normal frequency curve for the LD₅₀ per cent values obtained for the recrystallized laboratory standard ANTU. These data show that there was a change in the absolute value of the standard ANTU from

8 to 190 mg/kg, a seasonal variation of about 25 times; and for the commercial ANTU preparations from 5 to 260 mg/kg or about 50 times, in terms of absolute values for the LD₅₀ per cent value. If these had been individually reported in the literature in terms of absolute values obtained, without simultaneous tests on the laboratory standard, the confusion in "The Lethal Dose" would have been great indeed. However, when the potency of each commercial ANTU preparation is expressed in terms of the potency of the reference standard simultaneously measured, consistent results are obtained throughout the year. Our experience with other drugs has indicated a small seasonal variation, but rarely has this exceeded 2 (that is twice as much reference standard is required at one season as at another season of the year). Such variations in seasonal response have been obtained with reference standard insulin, digitalis, ouabain, and strychnine; the literature reports similar observations with caffeine, testosterone, niacin, riboflavin, various bacterial toxins, etc. Unfortunately, a reference standard for red squill has not been established at the time of this writing and conclusions regarding seasonal animal response to it cannot be made.

We have no explanation at this time for the tremendous seasonal variation obtained in our laboratory studies on ANTU on these Blaine-Wistar strain white rats. We have understood from pest control operators that a similar seasonal variation has been observed in their field usage of ANTU; that is that the material appears to be of lesser value in many field studies between Christmas and Easter. This coincides with the season of lowest absolute toxicity of ANTU in our laboratory studies. In planning field rat control campaigns, this possible seasonal factor is among those which must be given careful consideration in the selection of suitable rodenticides.

It is desirable that this finding of seasonal variation be confirmed by further studies under conditions in other laboratories. Further investigations are under way in an attempt to learn more of the causes of this phenomenon.

Conclusions

(1) It is important to qualify lethal dose determinations in terms of all possible factors which may influence such a response.

(2) The lethal dose of a substance has little significance unless compared directly with the lethal dose of a "standard" determined concomitantly.

(3) A seasonal variation has been noted in the LD₅₀ per cent values for commercial ANTU, following oral administration to Blaine-Wistar strain female albino rats weighing 100 to 125 grams.

(4) Parallel variations were noted to a laboratory standard recrystallized ANTU.

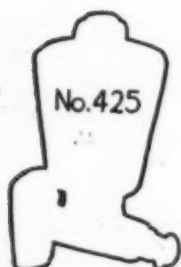
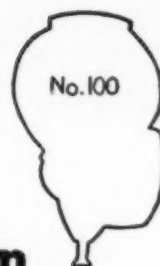
(5) Expressing potency of commercial ANTU in terms of reference standard, uniform potency is shown throughout the year in toxicity to rats.

TABLE I
LD₅₀ % values for ANTU—
oral, Rats

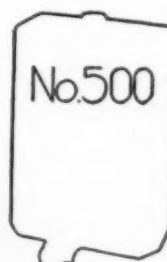
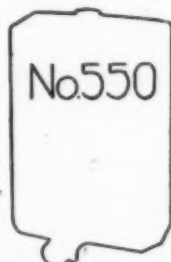
Date	Recrystallized ANTU	Commercial ANTU
July 1946		13, 13, 15, 16
August		10
September		5, 6, 11, 12
October	8	8, 10, 12, 12, 12, 14, 14, 17
November	19	9, 12, 14, 15, 16, 18, 22
December	36, 44, 46, 93, 100	48, 48, 50, 69, 73, 115, 120, 122, 130, 150
1947		
January	86, 160, 160, 190	145, 150, 178, 210, 220, 220, 220, 220, 220, 260
February	100	
March	64, 88, 96	70, 76, 86, 96, 96, 108, 120, 128, 130
July	22	28

The acute toxicity of ANTU (*alpha*-naphthyl thiourea) to rats is influenced by dietary substances. It was found that potassium iodide or Lugol's solution fed either in the drinking water or in the diet protected rats against large doses of ANTU. Potassium iodide fed at a level of 5.7 mg. per gram of diet for 10 days provided rats with enough resistance to survive doses of ANTU as high as 100 mg. per kilogram. R. U. Byerrum and K. P. DuBois, *J. Pharmacology* 90, 321-9 (1947).

Now! Right Now! plan for big 1948 Dispenser and Soap Sales



Make 1948 your biggest year ever on sales of Liquid Soap and Dispensers. We can aid you by furnishing a machine to fit practically every need . . . highest grade dispensers for installations requiring the best...L-O-W-E-S-T priced dependable dispensers for use as effective account openers.



**Write for Moore Bros. Co.
Price List and Jobbers'
Discounts**



What the DISTRIBUTOR expects from the MANUFACTURER

By Mitchell M. Rosenfeld*

United Sanitary Chemicals Co.

A FRANK discussion of some of the basic principles which should properly govern the conduct of business between manufacturers and distributors of sanitary products may well serve to clarify the atmosphere and improve relations between these two important groups in our industry.

In the sanitary products field, distributors are essentially wholesalers who buy merchandise for resale to the general public. They must be convinced that their merchandise will have a ready sale and that the quality will be such that their customers will not complain.

In our type of business I consider that there are three types of manufacturers:

1. One who sells exclusively to distributors.
2. One who sells to distributors and direct to consumer.
3. One who sells only to consumers.

For the purpose of this discussion, I am discussing only the first two classes, as it is obvious that those manufacturers who sell directly to consumers have no problem of distributorship. The distributor must be recognized as the middle man, between the manufacturer and the consumer. He serves an extremely useful function in our national economy, by carrying thousands of items in his warehouse, which are available on short notice to his customers.

The manufacturer should do everything in his power to keep the sanitary chemical industry as legitimate as possible by selling only to legitimate firms, and not to peddlers.

To elaborate, this is what is going on today. The peddler who sells and delivers from his car, is buying direct from the manufacturer the same as any old established janitor supply house. He can sell cheaper, because he has no overhead. He often goes so far even as to name the manufacturer, and in most instances can prove his statement to be true. If he convinces the customer, and in many cases he does, he disrupts the market. Eventually, the average peddler will try to put a fast one over on the customer by diluting or otherwise adulterating the product, and he may get away with it. Of course, I don't mean necessarily that it should be made very difficult for a man to get started in business—everyone should be given an opportunity—that is how we all started out. What I do mean is, that the reseller should have an established residence: he should brand everyone of his items: his product should be labeled properly, and he should be a responsible person, and not merely someone who can go to a manufacturer, pay him cash for the merchandise which he wishes to buy, and deal direct from his car. The manufacturer should sell only those who have legitimate operations. It is my opinion that a manufacturer should not sell to an individual who has his business in his hat.

I believe that every manufacturer and also distributors should carry *products liability insurance*, for protection of the consumer. In far too many instances, manufacturers have been known to ship out or mislabel products through error, causing extensive damage. In some of these instances, the manufacturers did not have the proper insurance to cover the necessary claims, which meant an exceeding amount of aggravation and trouble for the distributor.

It is obvious, of course, that a manufacturer should standardize the quality of his products, so that shipments will run dependably uniform. Should a change be made necessary because of the scarcity of some raw material, or for some other reason, we, as distributors should first be advised, and not told about the change only after we have discovered it. We should know what we are selling. Should a change in color or viscosity be made, we should be told first.

One of the chief problems that I have, as purchasing agent for the company with which I am connected, is to be able to recognize or test, the quality and uniformity of the products that are sold to me. Of course items such as brushes, brooms, machinery, etc., are a great deal more difficult to examine for quality, than are powders, liquids, pastes, or bars. I would suggest to manufacturers, that in attempting to assist distributors, that they prepare complete specifications for their products, to be sent to the distributor from the home office,—a sample representative of the merchandise that we are going to receive, together with complete specifications. If this suggestion is carried out and we can always be assured that when we take a sample from any one of the materials that we receive, that it is exactly like the sample that we have been sent originally, and the specifications are the same, it will enable us to do a better selling job and to sell a great deal more goods, intelligently, than we have in the past. Thus we will both gain: *we sell more goods: you sell more goods.*

Direct sales by the manufacturer to consumers have always seemed to be quite a problem to many distributors, and in many instances they have caused considerable dis-

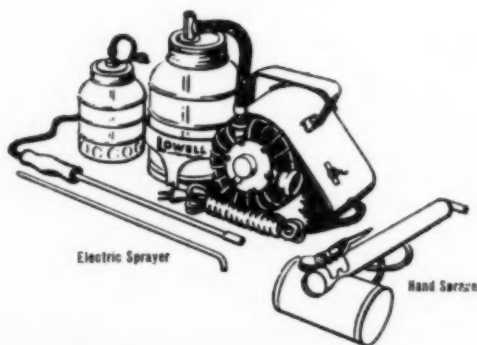
* Before Natl. Assn. Insecticide & Disinfectant Mfrs., Baltimore, December 3, 1947.

LOOK TO LOWELL



FOR YOUR PRODUCT

When a Lowell Sprayer or Duster is sold with your product, you can be sure of one thing—the perfect application that gives your insecticide a superior chance to prove its effectiveness. Naturally, this means repeat sales for you. Don't be "insecticide-wise and sprayer-foolish." Make sure your insecticide, liquid or powder, has the advantage of Lowell application.

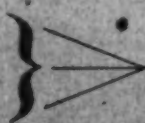


© 1947 L. M. Co.



"I've found that customer complaints are reduced to a minimum when I sell a Lowell Sprayer or Duster with my insecticide."

A Lowell Dealer
(name on request)



LOWELL
Manufacturing Co.

WORLD'S LARGEST MANUFACTURER OF SPRAYERS AND DUSTERS EXCLUSIVELY

WRITE DEPARTMENT 59, 589 EAST ILLINOIS STREET, CHICAGO 11, ILLINOIS

turbance. Quite a number of manufacturers, of course, sell not only to distributors but also direct to consumers. Just recently, after buying a certain type of hospital soap from a manufacturer for years, I personally found out that he was also selling direct to hospitals in our own city. This naturally leaves a bad taste and of course, we will never buy again from that manufacturer.

A manufacturer should make his choice. He should sell either distributors or consumer, but not attempt to sell both. If he wants to sell consumers, we have no fault to find. But we do not want to buy from him, and have him represent that he is selling to distributors only, and then find out that he is carrying water on both shoulders and selling consumers as well. In other words, let him state his business.

In many instances, we have also found that manufacturers sometimes sell direct to consumers under a dummy company. They have a completely separate organization, probably shipping out of the same warehouse, but billing under another name. I believe that this is a poor practice and should also be stopped. You can't have your cake and eat it too.

We naturally do not expect manufacturers to refrain from selling large government institutions, or treasury procurement departments, or the bureau of federal supplies. We realize that as a distributor, we are not in a position to sell these very large orders, but we do feel that manufacturers should refrain from selling government institutions when the order involved is small,—a size that a distributor can handle and handle profitably, out of his warehouse, and render the proper service that only a distributor can give.

It is my belief that a manufacturer should give a distributor complete merchandising co-operation; he should keep him informed of changing market conditions, of changing price conditions, whether up or down. He should keep him informed at all times of new products coming out, to give him an opportunity to evaluate each new product. Literature should be furnished to him on each new item brought out. Too many times, manu-

facturers have come to me, with new products, without having any specific information as to what these products would do, or how they are to be used. We cannot expect to sell products without having complete and necessary information on them, and we can only do a good job when a manufacturer is willing to equip us with such information, and samples for proper tests. A great many times manufacturers will bring in a new product and expect us to do the preliminary selling on it, to find out whether the product is good or bad, or to find out what the markets are for the product. It is my opinion that a manufacturer should have these tests all completed before he brings me the new product. I do not want to sell a product unless I am sure that it is good for the use for which it is intended. Why should we, as a distributor, be the testing ground for a manufacturer's bad product? He should have made those tests long before he brings the product to us.

A few manufacturers' salesmen have a bad habit, upon occasion, of giving information about a product which is questionable. Above everything else, in order to do an intelligent selling job, a distributor must know what the product will do. He must know how it is used. There is nothing worse than misinformation, either implied or inferred to say that a product is something, because they wish you to believe a product is something, which it is not. Also it appears to me that manufacturers should tell distributors, in addition to the good points of the product, the bad points, so that we can instruct our salesmen not only as to the merits of the product, but also where the product should *not* be used. In other words, give us all of the good points, and also the warnings about the products. It is very costly to have unsatisfactory merchandise returned, there is not only a double freight expense involved, but our salesmen and customers become more cautious.

It is our opinion that manufacturers of nationally branded or nationally advertised products, which are sold under their brand, should establish definite resale prices, and control such resale prices to the consumer, so

that every distributor will sell the product at a legitimate markup. This is possible under a fair trade act, and I feel that it is the manufacturer's place to police the industry and correct the evils that we have on price fluctuations on nationally branded goods today. The only way that this can be controlled, is to sell only to the legitimate vendors and only to those who have the proper representation.

If the manufacturer has a new item to introduce to the trade, I believe that he should offer some sort of incentive, not only to distributors but also to their salesmen, perhaps in the way of bonuses, or prizes. This would be one good way of pushing a new product ahead.

I firmly believe that as a distributor, I have the right to know from the manufacturer, the answers to the following questions. There are probably many more questions for which I should have the answers, but I feel that these are the most important.

1. What type of trade do you sell to?
2. Do you carry products liability insurance?
3. How will the distributor recognize or test the quality and the uniformity of your product?
4. What is the real cost of each item, considering the quality, freight cost and dependability?
5. Is it cheaper to buy a large quantity frequently or small quantities infrequently?
6. For what group of users, is your product best suited? (In other words, service stations, hospitals or restaurants, etc.).
7. Will your product create a new demand, or will you have to depend on my winning over part of the existing market?
8. What share of the potential market do you as a manufacturer think I as a distributor should get?
9. What new uses have you developed for your product?
10. What steps do you take to assure quality standards our customers will demand?
11. How do you keep up with technological improvements in your industry?
12. How do you keep abreast of a competitive market, and what information can you send me in regard to this?
13. Will you supply me with circulars, samples for our salesmen to enable us to sell your products in a satisfactory manner?
14. Will you sell only to recognized dealers?
15. If at all possible will you advise us of present and future market conditions?



On the Germicidal Behavior of a - - - -

QUATERNARY AMMONIUM COMPOUND

By John W. Klimek
and L. E. Umbreit*

Sterling-Winthrop
Research Institute

BACTERIOLOGISTS in testing laboratories generally recognize that irregularities frequently occur in the testing of germicides by the standard F.D.A. method (1). From time to time attempts have been made to correct at least some of those features of the test which have been held mainly responsible for the inconsistencies observed. Among the recognized sources of difficulty are: variation in the composition and components of the test medium; genetic mutation or transitory dissociation of the test culture; variation in the number of organisms in the inoculum; variations in the number of organisms which may be transferred to subcultures when a standard 4 mm. loop is employed; and lastly, the habitual comparison of chemically unrelated substances with phenol, irrespective of the intrinsic properties and behavior of a compound or its appropriate application to specific uses.

The appearance of a promising new class of germicidal agents is usually an impetus for proposed changes in the conventional methods of testing germicides. All too frequently the investigations thus initiated appear to concentrate on modifying the behavior of the new-comer in an effort to make it conform to that of a conventional standard. Every antiseptic will show specific intrinsic limitations and modifications in behavior under the varied and often stringent circumstances encountered in use as well as under the relatively optimum conditions imposed by the procedures involved in the performance of the F.D.A. Phenol Coefficient Test.

In repeated tests the standard F.D.A. Phenol Coefficient Test may show undesirable variation in degree of germicidal activity, and in the frequency of "skips" and "wild plusses."

*Presented at the Disinfectant Symposium, Nat'l. Ass'n. Insecticide and Disinfectant Mfrs., Chicago, June 9, 1947.

It is the purpose of this paper to report on two aspects of the problem of evaluating a quaternary ammonium germicide, benzalkonium chloride, by means of the F.D.A. Phenol Coefficient procedure. First, a series of experiments was carried out to examine the validity of the data on the basis of which it was recently concluded (2, 3, 4) that high phenol coefficient figures have been claimed for the quaternary ammonium compounds on a "manifestly improper basis" (4). Second, the protocols of a series of 60 consecutive phenol coefficient tests *vs.* *Staphylococcus aureus* were carefully examined to determine the nature and degree of the variations encountered in routine practice, and additional experiments suggested by this analysis were performed.

Experimental

Methods: Except where specified to the contrary, the F.D.A. procedure for performing the Phenol Coefficient Test (1) was meticulously followed, and will not be described in detail. The test cultures which were used were *Staphylococcus aureus* 209 and *Eberthella typhi* Hopkins, which were maintained as prescribed. All tests were carried out in a thermoregulated water-bath at 20° C. unless otherwise specified, and subcultures were incubated at 37° C. Standard 25 x 100 mm. medication tubes were used routinely.

Material: The original quaternary ammonium germicide, benzalkonium chloride, was used throughout this study.

Protocols

1. *The Adequacy of Sampling in the Routine Testing of the Germicidal Activity of Benzalkonium Chloride.*

a. *The relation of volume of sample to qualitative variations.* Klarman and Wright (2, 3, 4), as well as others, have considered many of the eccentricities of phenol coefficient tests to be due to inadequacy of the sampling of the medication mixture. It has been pointed out (5) that a variable number of organisms may be transferred by a standard 4 mm. loop. Further, the volume of culture trans-



89 BARCLAY STREET, NEW YORK 8, N. Y.

ferred with a standard loop, and the microbial content, might vary with the concentration of a surface active germicide. An initial series of five phenol coefficient tests was conducted in which the results obtained by the use of a standard transfer loop were compared with those obtained by the transfer of a measured volume of 0.05 cc. by means of a pipette. The results typical for such a test are presented in Table I where it is apparent that the phenol coefficient value was not modified by the method of transfer employed; the phenol coefficient in each instance was 366. However, in a series of repeated tests, "skips" and "wild plusses" were encountered as usual. That this behavior is not peculiar to the use of the loop, or to quaternary ammonium compounds is illustrated in the otherwise "unsatisfactory" test in Table II. In this case the phenol coefficient obtained when the loop was used for transfer would be 352, whereas the phenol coefficient could only be approximated because of the irregularities which occurred when a pipette was used. In these experiments the use of a larger measured volume of transfer inoculum did not significantly improve the quality of the results obtained; i.e., irregularities were not eliminated. Residual bacteriostasis does not appear to account for such irregularities when the conditions of the experiment are considered. In the case of the 0.05 cc. transfer, the ratio of the volume of medication mixture transferred to the volume of the broth inoculated was 1:200, and in the case of the strongest concentration of quaternary sampled the dilution became 1:2,000,000. In the case of a single loop transfer, this ratio would be increased by at least 2.5 times. The chance for bacteriostatic activity at this high dilution (6) of quaternary is most remote.

The conventional inference to be drawn from the occurrence of "skips" as in the above example, is that with relatively few viable survivors it is possible to obtain a "false" negative even when the larger volume of 0.05 cc. is transferred. It was to obviate such a possibility that Klarman and Wright (2) introduced a "semi-micro" method, in which the en-

TABLE I
Comparison of the Standard Loop with Measured Volume Transfer

Test Compound: *Benzalkonium chloride*.
Test Organism: *Staphylococcus aureus* 209.

Dilution of Germicide.	4 mm. loop transfer Exposure in minutes			0.05 cc. transfer Exposure in minutes		
	5	10	15	5	10	15
<i>Benzalkonium chloride</i>						
1:10,000	0	0	0	0	0	0
1:20,000	+	0	0	+	0	0
1:25,000	+	+	0	+	+	+
1:30,000	+	+	+	+	+	+
1:35,000	+	+	+	+	+	+
<i>Phenol</i>						
1:50	0	0	0	0	0	0
1:60	+	+	+	+	+	+
1:70	+	+	+	+	+	+
Phenol Coefficient	366			366		

TABLE II
Comparison of the Standard Loop with Measured Volume Transfer

Test Compound: *Benzalkonium chloride*.
Test Organism: *Staphylococcus aureus* 209.

Dilution of Germicide.	4 mm. loop transfer Exposure in minutes			0.05 cc. transfer Exposure in minutes		
	5	10	15	5	10	15
<i>Benzalkonium chloride</i>						
1:10,000	0	0	0	0	0	0
1:15,000	0	0	0	0	0	0
1:20,000	0	0	0	0	0	0
1:25,000	0	0	0	0	0	0
1:30,000	+	0	0	+	0	+
1:35,000	+	+	0	+	+	0
1:40,000	+	0	0	+	+	+
<i>Phenol</i>						
1:70	0	0	0	0	+	0
1:80	0	0	0	0	0	0
1:90	+	+	+	+	+	+
Phenol Coefficient	352 ?			352 ?		

TABLE III
Klarman's Modified (Semi-Micro) Phenol Coefficient Procedure*

Test Compound: *Benzalkonium chloride*.
Test Organism: *Eberthella typhi*.

Dilution of Germicide.	Exposure in minutes			Final dilution of germicide in subculture
	5	10	15	
<i>Benzalkonium chloride</i>				
1:1000	0	0	0	1:40,000
1:2000	0	0	0	1:80,000
1:5000	0	0	0	1:200,000
1:7500	0	+	0	1:300,000
1:10,000	0	0	0	1:400,000
1:15,000	+	+	0	1:600,000
<i>Phenol</i>				
1:90	+	0	+	1:360
1:100	+	+	0	1:400

* Medication mixtures were prepared in 1/10th the usual volume; at the end of the indicated period of exposure at 20°C. they were diluted to 20 cc. with sterile broth and incubated at 37°C.

tire volume of the medication mixture is subcultured.

Following Klarman and Wright's published instructions (2) we have carefully duplicated the semi-micro procedure three times. Special care was taken to insure the transfer of the inoculum into the germicidal solution without contaminating the wall of the medication tube, and the

usual aseptic precautions were observed. The results typical of such tests are given in Table III and Table IV. Although we consider that the rationale of the procedure is sound, we were unable to confirm any of the merits claimed, or the conclusions which were reached by its original use. Under our experimental conditions the efficiency of the benzalkonium chloride



Announcing Continental's New "Fingertip" Aerosol Container

Special features of the low-pressure "Fingertip" container

1. Low cost
2. Designed for high-speed automatic filling.
3. Easy, dependable action.
4. Light but sturdy.
5. Low shipping costs due to valve position under top of double seam.
6. Easy stacking for counter display.
7. Internal coatings to suit product.

Here's the most effective, practical and economical low-pressure aerosol container you've ever seen.

Designed like a flat-top beer can—it is called "Fingertip" because the key to its many advantages is its new, highly efficient fingertip valve.

Although the "Fingertip" container is light and low in cost, tests with insecticides show it delivers the same knock-down and killing properties as high-pressure aerosols.

See the panel at the left for its "7 features" and you'll understand why this new container is ideal for insecticides . . . how it can be readily used for many other products.

If interested, write our nearest Sales Office for a comprehensive booklet on low-pressure aerosols.

CONTINENTAL  CAN COMPANY

100 East 42nd Street

New York 17, N. Y.

was far greater than was indicated for any of the quaternary ammonium compounds examined by Klarmann and Wright (4). Furthermore, "skips" were still encountered.

b. *Alleged rôle of adsorption of viable bacteria upon glass.*

A number of bacteriologists, including ourselves, have suspected that some of the reported erratic germicidal behavior of quaternary ammonium compounds was attributable to irregular distribution of the bacteria under the influence of the surface active agent. Klarmann and Wright (4) concluded that the organisms "are massed against the walls of the tube thereby preventing an average sample from being picked up by the loop when employing the F.D.A. testing procedure," and the data which they obtained by their glass strip technique appeared to prove their contention. They offered evidence that *Eberthella typhi* was removed from suspension by adsorption on to the glass. Whereas culture of the fluid medication mixture indicated germicidal activity, numerous viable organisms were present on a glass strip insert after exposure to 1:1000 concentration of a quaternary ammonium compound, and impressive photographs were submitted in evidence.

Using Klarmann and Wright's glass strip procedure in every respect, we have attempted on five occasions to confirm their results. Typical results of our experiments are presented in Tables V and VI. It was determined that the glass strips which we used (11 x 37 mm.) accomplished the transfer of almost exactly 0.05 cc. of culture fluid. We found no evidence that a significant number of viable organisms remained adsorbed on glass in a tube that failed to show growth by transfer of a comparable volume of medication mixture. The degree of germicidal activity demonstrated by the glass strip technique was within the normal range of activity of the test compound as determined by the standard F.D.A. method.

To determine whether the use of a container with an inert surface would modify the results obtained by a standard procedure, phenol coefficient

TABLE IV

Klarmann's Modified Phenol Coefficient Procedure*

Test Compound: *Benzalkonium chloride*.
Test Organism: *Staphylococcus aureus* 209.

	Growth in tubes			Growth in flasks			Final dilution of germicide in subculture
Dilution of Germicide	Exposure in minutes			Exposure in minutes			
	5	10	15	5	10	15	
<i>Benzalkonium chloride</i>							
1:1000	0	0	0	0	0	0	1:400,000
1:2000	0	0	0	0	0	0	1:800,000
1:5000	0	0	0	0	0	0	1:2,000,000
1:10,000	0	0	0	+	+	0	1:4,000,000
1:20,000	0	0	+	+	+	0	1:8,000,000
1:25,000	+	+	+	+	+	+	1:10,000,000
1:30,000	+	+	+	+	+	+	1:15,000,000
<i>Phenol</i>							
1:70	0	0	0	0	0	+	1:28,000
1:80	+	+	+	+	+	+	1:32,000
1:90	+	+	+	+	+	+	1:36,000

* The medication mixture was diluted to 200 cc. with sterile broth, agitated, and the medication tubes refilled to 20 cc. Both tubes and flasks were incubated at 37°C. for evidence of growth.

TABLE V

The Viability of Culture Exposed to Germicide: Glass Strip Procedure

Test Compound: *Benzalkonium chloride*.
Test Organism: *Staphylococcus aureus* 209.
Exposure: 10 minutes.

Dilution of Germicide	Number of colonies per plate on transfer of		Growth in broth
	0.05 cc.	glass strip*	
<i>Benzalkonium chloride</i>			
1:1000	0	0	0
1:5000	0	0	0
1:10,000	0	0	0
1:20,000	0	0	0
1:25,000	0	0	0
1:30,000	0	0	0
1:40,000	0	5	0
1:50,000	6	0	+
<i>Phenol</i>			
1:60	0	0	0
1:70	433	277	+
1:80	very numerous	very numerous	+

* 1 x 11 x 37mm.; volume transferred = 0.05 cc.

TABLE VI

The Viability of Culture Exposed to Germicide: Glass Strip Procedure

Test Compound: *Benzalkonium chloride*.
Test Organism: *Eberthella typhi*.
Exposure: 10 minutes.

Dilution of Germicide	Number of colonies per plate on transfer of		Growth in broth
	0.05 cc.	glass strip*	
<i>Benzalkonium chloride</i>			
1:1000	0	0	0
1:2000	0	0	0
1:5000	0	0	0
1:7500	0	0	0
1:10,000	0	0	0
1:15,000	0	0	+
1:20,000	550	650	+
<i>Phenol</i>			
1:90	3	0	0
1:100	7	1	+

* 1 x 11 x 37mm.; volume transferred = 0.05 cc.

tests were carried out in medication tubes coated with paraffin wax ("Tex-wax"). The results in each of three experiments were exactly the same as obtained with their respective control series in non-coated glass tubes. Briefly,

we have found no evidence that the adsorption effect is responsible for any of the irregularities observed in the performance of the F.D.A. Phenol Coefficient Test for the evaluation of benzalkonium chloride.



Skillfully done...

The masters' touch of skill and experience is highly important consumer-wise in perfuming an insecticide. Capably masking the solvent to leave no residual odor is a job that can be skillfully done. Send us a gallon of your unperfumed insecticide...we'll return it with our recommendations for proper masking.

VAN AMERBINGEN-HAEBLER, INC.

315 FOURTH AVENUE | NEW YORK 10, NEW YORK



2. Examination of the Nature of the Variations Encountered in the Routine F.D.A. Phenol Coefficient Test on Benzalkonium Chloride.

Having obtained only data not in agreement with those reported by Klarmann and Wright (2, 3, 4), the nature of the problem was studied by a careful examination of the results of 60 consecutive routine germicidal tests on benzalkonium chloride *vs.* *Staphylococcus aureus*. The following data were obtained:

a. Variation in limiting dilutions which killed in 5 but not in 10 minutes.

On the basis of the most conservative interpretation, the limiting dilutions ranged from 1:15,000 to 1:40,000. The average value was 1:27,187 (S.E. 1,129), the median value was 1:30,000. The frequency of various limiting dilutions encountered in the 60 tests on benzalkonium chloride and in 30 control tests on phenol are shown in Table VII for comparison. It is apparent that analogous degrees of variation occur within their respective zones of variation.

b. The relation of aberrant evidence of disinfection to concentration of germicide and duration of exposure.

Two types of irregularities are encountered in data provided by the phenol coefficient test procedure: the occurrence of "wild" plusses, and/or "false" negatives or "skips." In order to assure consistency in evaluation it is necessary to define arbitrarily the two variants, and to set up a pattern as a guide. A "wild" plus is one which occurs under circumstances where growth would not be expected in the light of the other results of the test in question; a "skip" occurs when there is no growth from a sample which presumably contained viable organisms. Examples of the possible irregularities are illustrated in Table VIII. Table IX shows the frequency and distribution of wild plusses and skips in relation to dilution and time of exposure in the above series of 60 consecutive tests. The occurrence of wild plusses was not related to time of exposure, but did show a unique relationship to concentration of the germicide in that 17 of the 18 ex-

TABLE VII
Comparison of the Frequency of Variation of Limiting Dilutions of Phenol and Benzalkonium Chloride in Their Respective Zones of Variation

Benzalkonium chloride (60 tests)			Phenol (30 tests)		
Dilution	Frequency	%	Dilution	Frequency	%
15,000	6	10.0	50	1	3.33
20,000	5	8.3	60	6	20.0
22,500	4	6.6	65*	16	53.33
25,000	6	10.0	70	4	13.33
30,000*	19	31.6	75	1	3.33
35,000	18	30.0	80	2	6.66
40,000	2	3.3	90	0	—

* = Median value.

amples (94.5%) occurred at 1:20,000. The occurrence of "skips" began at 1:25,000 and increased in frequency with increased dilution without the formation of a pattern. The observations recorded in Table IX indicate that 1:20,000 to 1:25,000 is the critical concentration of benzalkonium chloride at which the pattern of irregularities shifts from wild plusses to skips. Fifty-one "irregularities" of evidence of disinfection were recorded in 37 of the 60 tests; determination of the limiting dilution was affected in 9 of the 60 tests.

c. The relation of the number of viable organisms to the occurrence

TABLE VIII
Examples of "Wild" Plusses, and False Negatives, or "Skips," Which May be Encountered in Routine F.D.A. Phenol Coefficient Tests

"Wild plusses" Minutes			"Skips" Minutes		
5	10	15	5	10	15
(+)	0	0	+	0	0
0	0	0	(0)	+	0
0	0	0	+	+	+
0	(+)	0	+	(0)	+
0	0	0	+	+	+
0	0	0	+	+	+
0	0	0	+	+	+
(+)	0	0	(0)	+	+
0	0	0	+	+	+
0	0	0	+	(0)	+
+	0	(+)	+	+	+
+	+	0	+	+	+
+	+	0	+	+	(0)

of "positive" cultures in the phenol coefficient procedure.

Phenol coefficient tests, with parallel agar plate counts, were carried out to determine the number of surviving test organisms which might be transferred in one standard loopful, or approximately 0.01 ml. The results of two tests are presented in Table X. There was a close correlation between the number of bacteria present in a volume corresponding to the standard loopful and the results of the routine procedure. It is noteworthy that benzalkonium chloride and phenol behaved essentially alike in zones of effective concentration.

3. Variation in the Sensitivity of Culture to Action of Germicide.

Mutation or dissociation of test cultures is sometimes implicated as a factor responsible for variations in results obtained in phenol coefficient tests. The fact that the bacterial population of any given culture varies with respect to susceptibility to disinfectants has long been recognized. While the majority of a bacterial population may be equally and readily susceptible, some of the individuals may demonstrate marked differences in degrees of resistance. Under such circumstances the time required for complete disinfection

TABLE IX
Frequency and Distribution of Irregularities in Relation to Exposure Time and Dilution

Observations on 60 Consecutive Routine F.D.A. Phenol Coefficient Tests on Benzalkonium Chloride.
Test Organism: *Staphylococcus aureus* 209.

Dilution	5 minutes		10 minutes		15 minutes		TOTAL	
	WP	S	WP	S	WP	S	WP	S
10,000	—	—	1	—	—	—	1	0
20,000	6	—	5	—	6	—	17	0
25,000	—	—	—	2	—	—	0	2
30,000	—	5	—	5	—	—	0	10
35,000	—	2	—	3	—	2	0	7
40,000	—	—	—	8	—	6	0	14

WP = "Wild plusses."

S = "Skips."

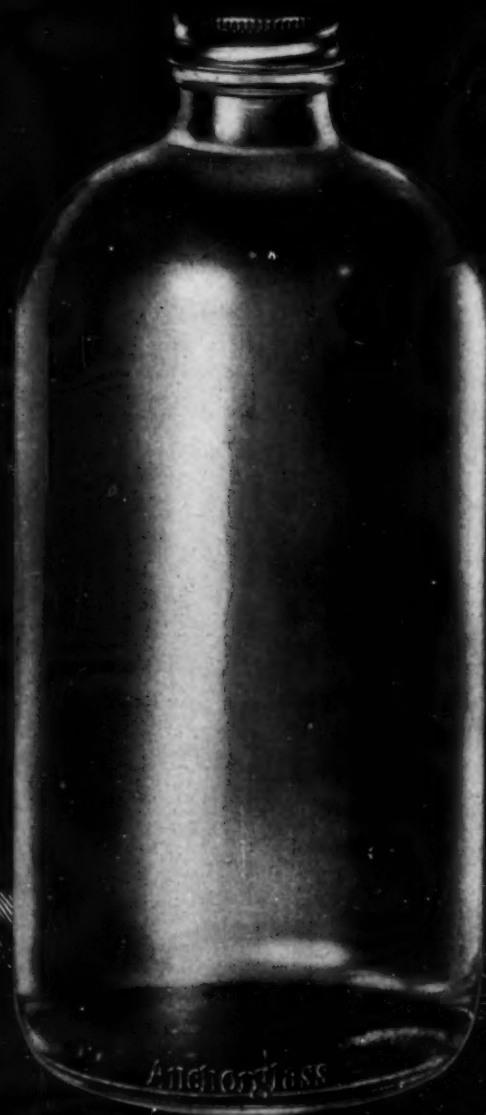
Fifty-one "irregularities" occurred in 37 of 60 tests.

It's *Glass* for visibility...

WITH the visibility afforded by a glass container you see your product at all times to better control proper packing—to see that quality is maintained and appearance is as it should be. When you pack in Anchorglass you accentuate the fine quality of your product with the brilliance, sparkle and sales appeal of a container famous for its transparency, luster and perfection. People prefer to buy in glass—to see exactly what they are getting. The visual inventory tells them when to reorder.



PRODUCTS OF
ANCHOR HOCKING GLASS
CORPORATION
LANCASTER, OHIO



AND IT'S *Anchorglass* FOR MAXIMUM VISIBILITY

"Crime Photographer", Thursday evenings, entire CBS network, sells all America on glass-packaged products.

tion is determined by the relative sensitivity and survival time of the most resistant individuals in the inoculum, rather than by the sensitivity of the majority of the bacterial population.

We have attempted to demonstrate this variation in susceptibility to benzalkonium chloride and to phenol by using cultures derived from single colony isolations from the parent strain. *Staphylococcus aureus* 209 was plated on F.D.A. agar and incubated 24 hours. Fifteen isolated colonies were picked and subcultured separately in F.D.A. broth. After six serial transfers in F.D.A. broth these daughter cultures were used for phenol coefficient tests against benzalkonium chloride. The results obtained are presented in Table XI and Table XII.

It is to be noted that under conditions of the test, the daughter cultures gave phenol coefficients averaging 478.4 but varying from 231 to 571 despite the fact that all cultures had a "phenol resistance" within the limit required of a "standard" culture. Five tests on the parent culture under identical conditions gave an average phenol coefficient value of 423.8, and a range of 307.7 to 538. The phenol "sensitivities" ranged between 1:60 and 1:70. The observed degree of variability could account for much of the range of variation encountered in the results obtained in a series of repeated tests with a quaternary ammonium compound, or with any other active germicide, on the basis of individual and strain differences in susceptibility.

Discussion

THE suggestion that variations encountered in the phenol coefficient testing of a surface active quaternary ammonium compound might be due to reduction of the size of the loop-transferred inoculum is untenable when a five-fold increase in measured volume of inoculum did not improve the quality of the results. Further, in relation to the F.D.A. test procedure, the effect of lowered surface tension in reducing the volume and content of the sample would become less important with progressive dilution, and therefore less significant in testing compounds which are active at high dilutions. Apparently the use of sur-

TABLE X
Relation of Number of Viable Bacteria* to Results of the F.D.A. Phenol Coefficient Test

Dilution of Germicide	Test A						Test B					
	Standard** F.D.A.			No. Bacteria*** per 0.01 ml.			Standard** F.D.A.			No. Bacteria*** per 0.01 ml.		
	Minutes			Minutes			Minutes			Minutes		
	5	10	15	5	10	15	5	10	15	5	10	15
Benzalkonium chloride												
1,000	0	0	0	0	0	0	0	0	0	0	0	0
2,500	0	0	0	0	0	0	0	0	0	0	0	0
5,000	0	0	0	0	0	0	0	0	0	0	0	0
7,500	0	0	0	0	0	0	0	0	0	0	0	0
10,000	0	0	0	0.05	0	0	0	0	0	0.65	0	0
20,000	+	0	0	0.03	0.1	0.1	0	0	0	0.3	0	0.6
25,000	+	0	0	3.6	0.1	0	0	0	0	0.6	0	0.1
30,000	+	+	0	360	0.8	0	+	0	0	0.7	0	0.2
40,000	+	+	+	X	230	3.7	+	+	+	X	512	15
Phenol												
50	0	0	0	0	0	0						
60	0	0	0	0.75	0.05	0						
70	+	+	+	81.4	49	1.9						
80	+	+	+	X	X	1095						

* = Inoculum contained 431,400,000 *Staphylococcus aureus* (862,800/0.01 ml.).

** = 0.01 ml. transferred.

*** = Calculated from agar plate counts on 0.2 ml. of sample.

X = Too numerous to count at the dilution used.

TABLE XI
Demonstration of Variation in Culture Resistance

Parent Strain: *Staphylococcus aureus* 209; phenol resistance 70.
Procedure: Standard F.D.A. Phenol Coefficient Test.

Dilution of Germicide.	Daughter Cultures											
	A			B			C			D		
	5	10	15	5	10	15	5	10	15	5	10	15
Benzalkonium chloride												
1:10,000	0	0	0	0	0	0	0	0	0	0	0	0
1:20,000	0	0	0	0	0	0	0	0	0	0	0	0
1:25,000	0	0	0	+	0	0	+	0	0	0	0	0
1:30,000	+	0	0	+	+	0	+	0	0	+	0	0
1:35,000	+	0	0	+	+	0	+	0	0	+	0	0
1:40,000	+	0	+	+	+	0	+	+	+	+	0	0
Phenol												
1:50	0	0	0	0	0	0	0	0	0	0	0	0
1:60	0	0	0	+	0	0	0	0	0	0	0	0
1:70	+	+	0	+	+	+	+	+	0	+	0	0
1:80	+	+	+	+	+	+	+	+	+	+	+	+
Phenol Coefficient	538			416			461			500		
										571		
										538		

TABLE XII
Variation of Phenol Coefficients obtained with 15 Daughter Strains and 5 Replicate Tests With the Parent Strain

No.	Limiting Dilutions	P.C.	No.	Limiting Dilutions	P.C.
Daughter cultures					
D 1	40,000/70	571	D 12	25,000/60	416
D 2	35,000/65	538	D 13	25,000/65	385
D 3	35,000/65	538	D 14	25,000/65	385
D 4	35,000/65	538	D 15	15,000/65	231
D 5	35,000/65	538			
D 6	35,000/65	538	Parent culture		
D 7	35,000/65*	538	P 1	35,000/65	538
D 8	*35,000/70	*500	P 2	32,500/70	465
D 9	30,000/60	500	P 3	*30,000/65*	*461
D 10	30,000/60	500	P 4	22,500/65	346
D 11	30,000/65	461	P 5	20,000/65	308

* = Median Values.

Average daughter P.C. = 478.4.
Range = 231 — 571.

Average parent P.C. = 423.8.
Range = 308 — 538.

face tension depressants for solubilizing and increasing the killing power of less active germicides has not caused undue complications (7).

Failure to confirm the utility

of the semi-micro method in eliminating irregularities indicates that their cause is not primarily due to inadequacy of the volume of the sample. If

(Turn to Page 159)

KRANICH SOAPS

MANUFACTURED FROM FATTY ACIDS DISTILLED AND OILS REFINED BY US

MAINTENANCE SOAPS

LIQUID TOILET

40% Concentrated Coconut Oil
32-33% (special) anhydrous, distilled Coconut

LIQUID TOILET BASE

Standard Coconut Oil 60% concentrated
Crystalline Coconut Oil 50% concentrated

POTASH VEGETABLE OIL

Soft Potash 40% anhydrous
Hard Potash 65% anhydrous

LIQUID SCRUBBING

Pine, Sassafrass, Odorless
20% anhydrous

POWDERED COCONUT OIL 98%

(For Detergent Compounding)

*CONCENTRATED means pure soap
and glycerine

ANHYDROUS means pure soap only

Kranich Soap Company, Inc.

54 Richards Street

Brooklyn 31, N. Y.

KRANICH SOAPS

SLIPPERINESS of Walkway Surfaces

By Percy A. Siegler*

National Bureau of Standards,
U. S. Department of Commerce

SLIPPERY walkway surfaces are responsible for a large number of serious injuries and accidental deaths every year. In order to eliminate as far as possible such hazards, a joint research project has been undertaken by the National Safety Council and the National Bureau of Standards directed toward developing safety codes for walkways and footwear. The object of the Bureau's investigation is to develop methods for measuring the slipperiness of walkway surfaces under conditions of use and to apply these methods in selecting materials and methods of maintenance for both walkways and footwear that will reduce the frequency of accidents from falls.

The establishment of safety codes for walkway surfaces and footwear has been materially handicapped by the lack of adequate methods of measuring slipperiness. Slipperiness is not a constant of the walkway or the footwear but is a function of both surfaces and is materially affected by their condition. The correlation between coefficient of friction as commonly measured, and slipperiness as actually experienced is not good, especially where wet surfaces are involved. Most of the devices that have been used in the past for measurement of the coefficient of friction between shoe soles and walkway surfaces were concerned with starting rather than

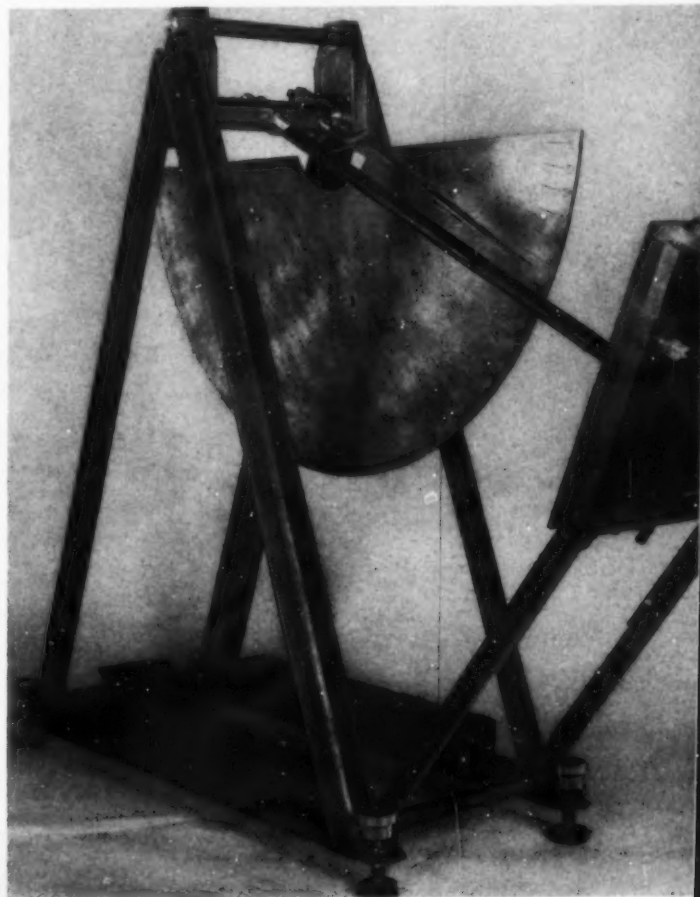
sliding friction, and an appreciable area of contact between sole and floor surface was generally used. These methods were thus more representative of a person standing on a floor than of someone in the process of walking, when most slips and falls occur.

As an aid in the design of testing instruments, the National Bureau of Standards is making a study of walking habits in an effort to obtain data on such factors as the manner in which the heel contacts a walkway surface during the restraining phase of a step, the probable angles of contact between heels and walkway sur-

faces, the momentary forces involved, and the functions of muscles in locomotion. Concealed cameras have been used to take slow-motion pictures of people walking in their usual manner, while they were unaware of being photographed. These pictures show, among other things, that the foot is first placed upon the walkway surface at an angle so that only the rear edge of the heel is in contact during the early stages of the restraining phase of a step. The other foot remains in contact with the walkway and thus bears part of the vertical load until the heel rocks forward and the foot is firmly planted. This phase of the investigation was supplemented by a study of worn heels, which showed that maximum wear usually occurs at the outside border of the rear portion of a heel. The contour of this worn portion was found to be in the form of a curve rather than a bevel.

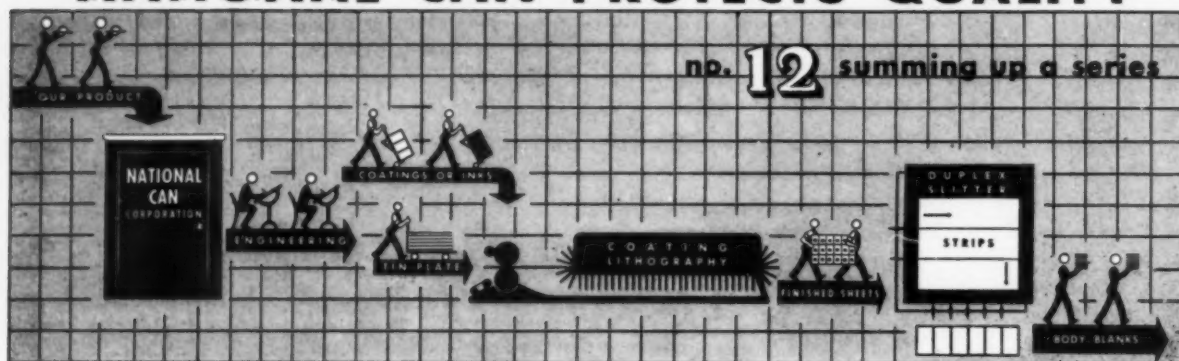
It is extremely difficult to reproduce artificially, in the laboratory, walkway surfaces that are typical of the various conditions in service, because the location of a floor determines to a large extent the texture of its worn surface. A portable, impact-type slipperiness tester has been designed by the National Bureau of Standards that can be used to test

The pendulum of this slipperiness tester has a leather or rubber heel attached to its end. When the pendulum swings, the edge of the heel sweeps over the test piece, which is held by a spring to the walkway surface upon which the machine is resting. The height of the pendulum swing to the left is a measure of the anti-slip coefficient of the test piece.

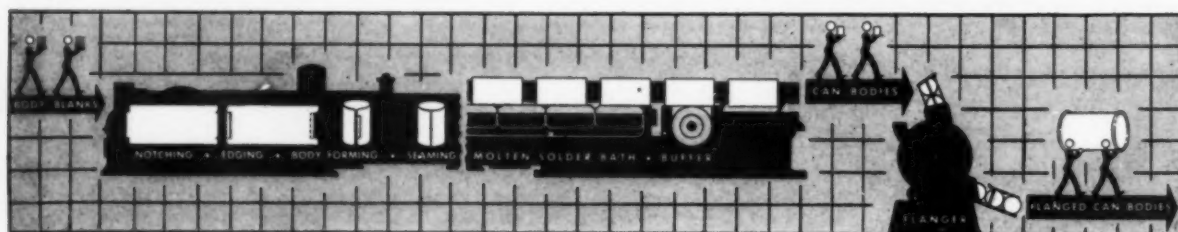


*Based on a paper presented before the Nat. Assoc. Insecticide & Disinfectant Mfrs., December 3, 1947, Baltimore, Md.

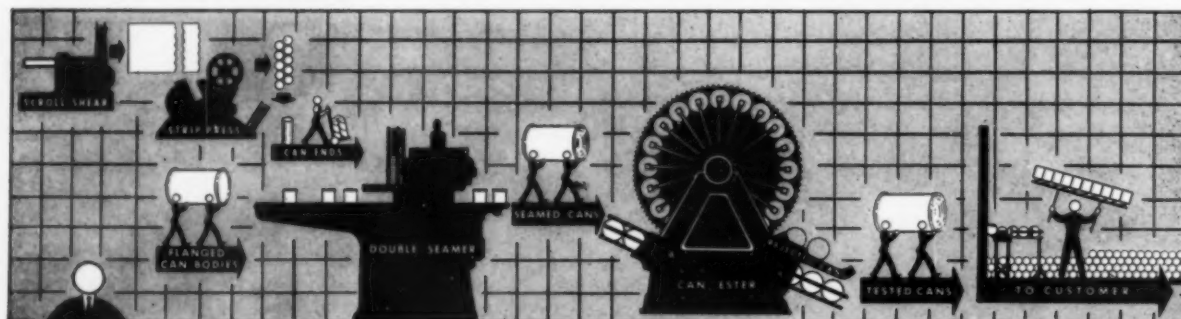
FROM DESIGN TO DELIVERED PRODUCT NATIONAL CAN PROTECTS QUALITY



... ITS ENGINEERING AND ART SERVICES ARE AT YOUR DISPOSAL ... IT MAINTAINS HIGH PROTECTIVE COATING AND LITHOGRAPHING STANDARDS ... SLITTING METHODS INSURE UNIFORM BODY BLANKS



... ITS CAREFUL BODY FORMING HELPS MAKE TIGHT UNIFORM CONTAINERS ... ITS THOROUGH SIDE-SEAMING INSURES TIGHTNESS ... IT FLANGES CAN BODIES UNIFORMLY ON BOTH ENDS ...



... THE WAY WE MAKE CAN-ENDS IMPROVES PACKERS' OPERATIONS ... DOUBLE SEAMERS PRODUCE UNIFORMLY TIGHT SEAL ... TESTING AUTOMATICALLY REJECTS ALL BUT AIR-TIGHT CANS ... CAREFUL HANDLING AND PACKING PROTECT CANS ALL THE WAY ITS PERSONALIZED SERVICE HELPS CUSTOMERS IN THEIR OWN PLANTS

Reprints of this entire series can be obtained upon request.

NATIONAL CAN C O R P O R A T I O N

Executive Offices: 110 EAST 42nd STREET, NEW YORK 17, N. Y.

SALES OFFICES AND PLANTS IN: BALTIMORE, MD. CHICAGO, ILL. HAMILTON, OHIO BOSTON, MASS.
INDIANAPOLIS, IND. MASPETH, N. Y. CANONSBURG, PA. ST. LOUIS, MO.

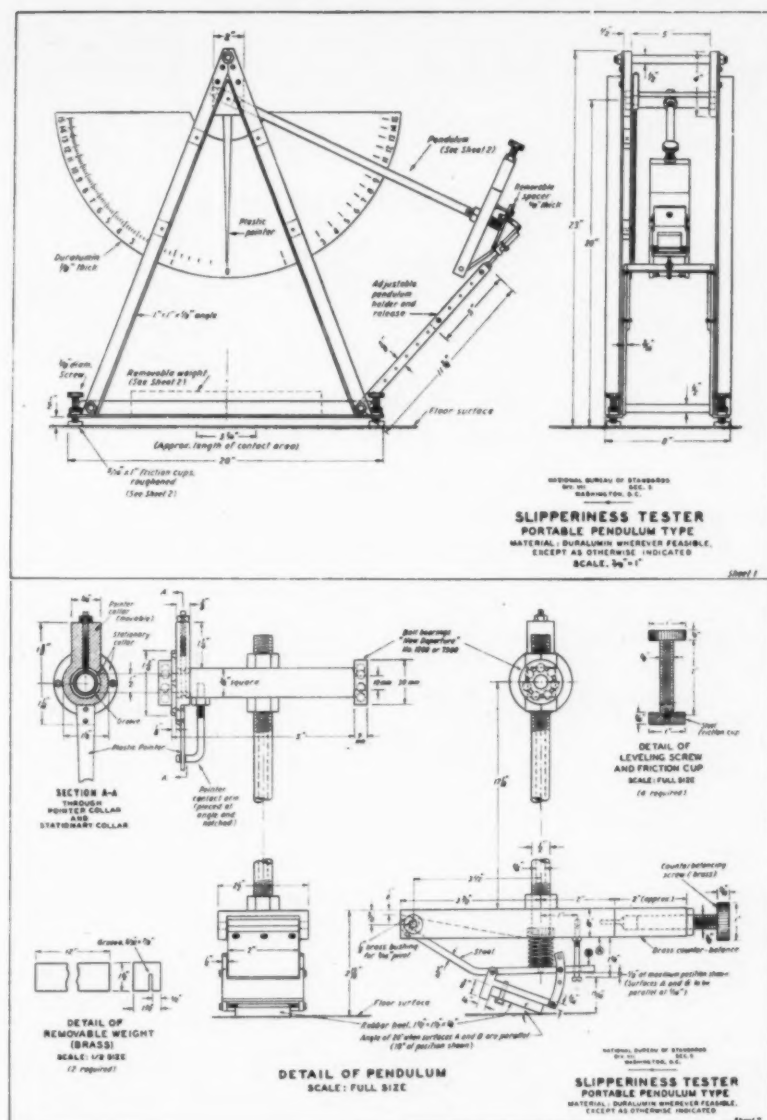
floors in actual service. The design is based on the premises that slipping is a function of two surfaces and that in the process of ordinary walking slipping is most likely to occur when the walkway surface is first contacted by the rear edge of the heel.

The instrument is primarily a compound pendulum which sweeps a shoe material over the walkway surface to be tested. A mechanical shoe forms the lower end of the pendulum and is so arranged that a 1½-inch square test piece of rubber, leather, or other heel material can be attached to the underside of the shoe at various angles so that only the rear edge of the test piece makes contact with the walkway surface. A helical spring is used to press the edge of the test piece against the walkway surface during contact. The pendulum is released at a fixed height and the edge of the heel is permitted to sweep over the surface of the floor specimen. A pointer attached to the framework at the center of oscillation of the pendulum indicates on a scale the maximum height to which the pendulum rises above its lowest position. From this information an "antislip coefficient" for the walkway and footwear surfaces can be computed.

Until the many factors which have a bearing on the results can be analyzed, it is advisable to consider the antislip coefficients obtained by this method as *relative* rather than *absolute* values. Some of the typical results obtained, however, may be of interest.

The antislip coefficients for concrete blocks ground with carborundum prior to testing ranged from 0.37 to 0.65, whereas the coefficients for a concrete floor with a cement-mortar topping, worn smooth over 25 years of service, ranged from 0.19 to 0.52. These results demonstrate the importance of surface condition and the inadvisability of assigning a single coefficient or even a single range of coefficients to one type of flooring.

The most important differences were observed in the wet state. Rubber tile with a very smooth molded surface showed high coef-



ficients when dry but very low when wet. A rubber tile containing aluminum grit was quite similar under dry conditions but was less slippery when wet. A rubber matting containing cotton fibers and in service in a transit bus showed fair antislip characteristics under all of the test conditions.

An investigation was made at Walter Reed General Hospital, Washington, D. C., to determine the relative slipperiness of different treatments for floors on which amputees are learning to walk with crutches and artificial legs. The antislip coefficients obtained for these floors were satisfactory under dry conditions, especially in conjunction with a rubber heel, but under wet conditions

the floors would be classed as extremely hazardous, especially when waxed.

An extensive investigation was also made on the asphalt-tile corridors of the Pentagon Building in Washington. The relative order of the antislip coefficients obtained with the portable slipperiness tester correlates very well with their relative slipperiness as actually experienced, indicating that there exists a critical degree of slipperiness which largely determines whether or not a slippery condition exists. With the portable instrument, the critical antislip coefficient is about 0.4. Surfaces having coefficients of 0.45 or better were

(Turn to Page 157)

1898

GOLDEN JUBILEE

1948

50 YEARS

of successfully serving the
wholesale trade exclusively
with carefully formulated
chemical specialties in bulk
or under private label



Thousands of regular customers depend on
Chemical Supply products to build their
reputation for handling high quality
merchandise.

Write today for a descriptive folder
and wholesale price list of the
full CS line.



THE CHEMICAL SUPPLY CO.

225 PLYMOUTH BLDG. CLEVELAND 15, OHIO

Your Most Logical Source of Supplies



Spread and Power

Effective pest control requires wide spread of
insecticide and the driving power to force it into
every crack and crevice—under mouldings, be-
hind baseboards, around plumbing, between
cases and bales.

Mistmaster Ball Bearing Fan Type Sprayers have
both the speed and the power to do a quick,
thorough job. Driven by 1/3, 3/5, or 1 hp.
motors, they spray insecticides for distances as far
as 40 feet, penetrate into hard-to-reach places,
and spray large areas quickly, completely.

Here is a sprayer that has more power than any
other portable sprayer, yet is convenient and
easy to handle. Equipped with 1-gallon non-corro-
sive tank, driven under low pressure with a high
volume of air, it can be used with any type of
insecticide, either oil base or water base, and
carries insecticides into remote openings in full
volume and power.

Used anywhere, it plugs into any electric outlet,
and is supplied with three nozzles for fine,
medium, or coarse spray. Can also be furnished
with 2-gallon tank and special nozzles or in
special design to meet individual requirements.

Write today for further details and complete
specifications, or mail the coupon.

SPRAYER CORPORATION OF AMERICA 1708 Payne Street, Evanston, Illinois			
<input type="checkbox"/>	Send complete information on Mistmaster Ball Bearing Fan Type Electric Sprayers.		
<input type="checkbox"/>	We are interested in details of your dealer franchise.		
Name			
Address			
City.....	Zone.....	State.....	

Sprayer CORPORATION OF AMERICA

1708 PAYNE STREET, EVANSTON, ILL.

From Current Literature in the Sanitary Products Field

Control of Hide Beetles

Gammexane is more effective than DDT for controlling larvae of hide beetles, *Dermestidae*. Application to heavily infested dried wool skins of 1 per cent Gammexane dust (0.5 pound per 100 square foot) reduced the beetle population by 97 per cent after 2 months' storage under summer conditions, while 4 per cent DDT dust reduced it by only 50 per cent. H. H. S. Bovingdon and G. H. Stock, *J. Intern. Soc. Leather Trades Chem.* 31, 115-19 (1947).

Soap in Mosquito Control

Thiodiphenylamine alone in a concentration of a kilogram per hectare was ineffective for control of *Anopheles* larvae, but a suspension of the same amount of the agent with 500 grams of soap in about 300 liters of water was 100 per cent effective. V. F. Viktorov and Y. S. Zhenzhurist, *Med. Parasitol. Parasitic Diseases* (U. S. S. R.) 16, No. 1, 46 (1947); through *Chem. Abs.*

Analysis of Quaternaries

Two qualitative and three quantitative methods for determination of quaternary ammonium compounds are described, based on the insolubility of the triiodides. These precipitate from aqueous solutions by addition of a solution containing iodine and potassium iodine. They separate as colored solids which can be isolated, dissolved in dilute alcohol, and determined colorimetrically or by titration with sodium thiosulfate. The most accurate method uses potentiometric ti-

tration with a solution of iodine. O. B. Hager, E. M. Young, T. L. Flanagan, and H. B. Walker, *Anal. Chem.* 19, 885-8 (1947).

Fumigation of Ship Holds

For fumigation of plant products in steel barges and the holds of ships at temperatures above 15.6° C., a dose of 2 pounds of methyl bromide per 1000 cubic feet is at present recommended for a 24-hour exposure, with the provision of circulating fans to ensure the even distribution of the fumigant. This treatment was found satisfactory to control all stages of 5 species of insects commonly found in imported peanuts. H. A. U. Monro, *Sci. Agr.* 27, 267-83 (1947).

Mildew Resistance Testing

A spore-rain technique was developed to meet the conditions required of an ideal mildew-resistance test method. Although the soil-burial method is considered one of the most severe tests employed in determining mildew resistance, it has more uncontrolled variables than does any other test. A definite asset inherent in soil burial is the automatic exposure of all surfaces of the test specimen at the same time, together with the fact that viable spores are present throughout the test period.

The new spore-rain mildew-resistance test, in addition to maintaining optimum temperature, humidity, and nutrient conditions, provides that the test specimen be the sole source of organic matter and that all surfaces of the test specimen be subjected to mildew attack. Furthermore, provision

is made for the automatic reinoculation of the test specimen with viable spores throughout the incubation period. The unique features of the method are as follows:

(1) Exposure of all surfaces of the test specimen, and the exclusion of organic matter other than the test specimen, is accomplished by the use of a corrugated porous clay support.

(2) Exposure of all surfaces of the test specimen to mildew attack is insured by inoculating all surfaces of the test specimen with fungus spores suspended in a high-nitrogen inorganic nutrient solution prior to incubation, and by supporting the test specimen on a corrugated porous clay support which insures aerobic conditions on the underside as well as the top side of the test specimen.

(3) Growth of mildew on Agar suspended in the top portion of the Petri dish assembly supplies a rain of viable spores which re-inoculate the test specimen throughout the incubation period. F. R. Romano, *Am. Dye-stuff Reporter* 36, 651-3, 675 (1947).

Hypochlorite-Hypobromite

A method for the simultaneous determination of sodium hypochlorite and hypobromite, in the absence or presence of bromide, chloride, bromate, and chlorate, is based on the selective reduction of hypobromite with alkali phenol solution. The sum of hypochlorite and hypobromite is estimated by arsenite and iodine in the usual way. The most suitable conditions for the analytical procedure are given. L. Farkas and M. Lewin, *Anal. Chem.* 19, 662-4 (1947).

Learn Iron Structure

The establishment of the chemical constitution of the ketone Iron and its synthesis was recently announced by Professor Ruzicka and the technical staff of the New York Firmenich & Co.'s parent organization in Switzerland. In two papers being published in the October 1947 issue of *Helvetica Chimica Acta*, the authors point out that natural iron, isolated in 1893 by Tieman and Krueger, from Iris root essence, is a tetra-methyl cyclohexanol derivative and is distinguished from the ionones by the pres-

*Make formulations
effective and easy*

TREM and TREN

EMULSIFIERS and SOLUBILIZERS

**TREN 40
for DDT**

emulsifies solutions in which the customary DDT solvents have been used.

**TREN 80 for
Chlordane**

to provide concentrates without solvents which can be readily diluted with water to form non-settling, clear solutions.

**TREN 45 for
Toxaphene**

dissolves as high as 50% of Toxaphene, and following water dilution gives stable emulsions ready for immediate field use. Also provides excellent emulsions with solvent solutions of Toxaphene.

**TREN 60 for
Chlordane**

to provide high concentration emulsible insecticide formulations with kerosene.

**TENLO-10
for HETP**

to give better wetting characteristics, increased coverage and control.

**TREM-014 and
TREM-024**

for emulsifying solvent solutions of various organic insecticides and herbicides wherein special properties are desired in finished formulation.

Write for samples and descriptive literature



GRIFFIN CHEMICAL
COMPANY
1000 SIXTEENTH ST. • SAN FRANCISCO • CALIFORNIA

THE WISCONSIN ALUMNI RESEARCH FOUNDATION



Offers The Services Of Its

INSECTICIDE TESTING LABORATORY

for the

BIOLOGICAL EVALUATION of AGRICULTURAL and HOUSEHOLD INSECTICIDES

Included in our services are: evaluation of proprietary household insecticidal materials, determination of the potency of proprietary agricultural dust and spray materials, and screening of unknown compounds for insecticidal and fungicidal properties. Write for details.

WISCONSIN ALUMNI RESEARCH FOUNDATION

P. O. Box 2059

Madison, Wis.

January, 1948

ence of a methyl group in position 6 and the methylenic semicyclic group. The term *gamma*-irone is proposed by the discoverers for this isomerism. The synthesis of an *alpha*-irone is also reported. This substance possesses the exact odor of natural *gamma* irone and is olfactorily totally different from the ionones and the methylinones. *Alpha*-irone existed in considerable quantities in the concrete essence of iris about thirty years ago when distillation was carried out in a strongly acidic environment.

Insecticidal Smokes

A pyrotechnic insecticidal smoke generator has been developed with use of sucrose and potassium chlorate as the vaporizer, and DDT or benzene hexachloride as the insecticide. The following compositions proved useful:

	Per cent
Sucrose	22.5
Potassium chlorate	18.5
DDT, tech.	57.0
Magnesium oxide	2.0

	Per cent
Sucrose	20
Potassium chlorate	20
Benzene hexachloride	58
Magnesium oxide	2

Almost the whole of the amount of insecticide present can be isolated from the cloud, as shown by analysis. Magnesium oxide is present to stabilize the composition and to fix any hydrogen chloride formed by decomposition of the insecticide. The latter is sublimed by ignition of the first two constituents.

Dispersion of an insecticide as a smoke is particularly suitable for the disinfection of inaccessible localities, such as lofts, the holds of ships, jungle undergrowth, warehouses, etc. Trials have shown that DDT and benzene hexachloride smokes have an immediate killing effect on flies, mosquitoes, cockroaches, and other insects. The residual effect has not yet been fully investigated. These smoke generators also function satisfactorily under water, and thus form a convenient means of producing a larvicidal film on the surface of mosquito-breeding pools. The trials so far made, indicate the possibilities of many applications. E. W. Bateman and G. K. Heath, *J. Soc. Chem. Ind.* 66, 325-30 (1947).

Testing Quaternaries

The glass slide technique for measuring the efficiency of quaternary ammonium types of germicides appears to offer certain advantages. Quaternary ammonium compounds, like chlorine compounds, show differences in their relative potency. In general, the former are more effective against the Gram-positive organisms, while the hypochlorites tested show an even greater advantage against the Gram-negative species tested. While the quaternary compounds show some responses to favorable adjustments in temperature and pH, these are much slighter than those shown by the hypochlorites. "A Method for Assessing the Sanitizing Efficiency of Quaternary Ammonium and Hypochlorite Products". C. K. Johns, Division Bacteriology and Dairy Research, Science Service, Department of Agriculture, Ottawa, Canada, in *Am. J. Publ. Health*, Oct., 1947, P. 1322.

Naphthenate Rotproofing

The weathering characteristics of cotton duck treated with copper or zinc naphthenate containing mercury naphthenate or phenyl mercury naphthenate, and the effect of weathering on the rotproofing efficacy of these compounds was studied by the soil burial method. Addition of mercury reduced the loss of copper during burial, with a corresponding increase in the protective action of the combination. There was no effect on the weathering properties. Binary mixtures of the naphthenates of cadmium, chromium, copper, iron, lead, mercury, silver, and zinc, containing 0.1 per cent of each metal were in general more effective than the same amount of single naphthenates. Ternary mixtures of cadmium, mercury, copper, lead, and zinc were superior to binary mixtures. C. H. Bayley and M. W. Weatherburn, *Can. J. Research*, 25F, 209-20 (1947).

Noncorrosive Disinfectants

A study was made of the effectiveness of solutions of disinfectants in killing bacterial vegetative cells in a watery suspension of fish slime, on dry artificially contaminated wooden

surfaces, and in nutrient broth, as well as the ability to destroy bacterial endospores and mold spores. Sodium hypochlorite was the best general disinfectant, as it destroyed bacterial vegetative cells, endospores, and mold spores. It was, however, very corrosive towards iron and copper.

Cationic detergents were ineffective against bacterial endospores. Sodium nitrite was added to "Roccal" (alkyl dimethyl benzyl ammonium chloride) as an anticorrosive without adversely affecting its germicidal potency. "Dowicides," "Lysol," and phenol were not satisfactory as their penetrating odors made them unsuitable for use around fish products. Although formaldehyde is used extensively in the fish industry, it is a poor disinfectant. H. L. A. Tarr, *J. Fisheries Research Board Can.* 7, 101-15 (1947).

Cation-Salt Conductivity

The electric conductivities were measured of some long-chain quaternary ammonium chlorides containing hydroxyalkyl groups. The substitution of hydroxyethyl for methyl groups does not materially change the conductivities or the concentration of electrolyte at the critical point for micelle formation. A. W. Ralson, D. N. Eggenberger, H. J. Harwood and P. L. DuBrown, *J. Am. Chem. Soc.* 69 2095-7 (1947).

Disinfectant

A new disinfectant is composed of hydrazides in which the hydrazide group is bound to an organic radical in such a way that it does not form ions. I. G. Farbenind. A.-G. Belgian Patent No. 448,492; through *Chem. Abs.*

Pyridine in Louse Control

Crude petroleum pyridine-base mixtures are effective in 30-40 per cent concentrations in contact with areas infected with lice for at least a half hour. Eggs are also killed by this treatment. Exposure of clothes to pyridine base vapor in a closed container for 2 hours at room temperature is sufficient to kill the pests. M. I. Komarova, *Med. Parasitol. Parasitic Diseases* (U. S. S. R.) 14, No. 2, 74.

**FLOOR WAXES
LIQUID SOAPS
DISINFECTANTS
INSECTICIDES
POLISHES
DEODORANTS
CLEANERS**

Manufacturers for the Trade Exclusively



Products are laboratory controlled and uniformly stabilized.
Quality materials at competitive prices.
Private Label Work — Bulk Quantities — Standard Packages
— Specialties.
Descriptive Literature and Price Quotations Furnished on Request.

TRIO

Chemical Works, Inc.

341 Scholes Street
Brooklyn 6, N. Y.

Manufacturers of Household Specialties use



Magnesium Aluminum Silicate

Because it combines these properties:

Detergency
Suspension

Dispersion
Emulsion stability

White color
Odorless

Samples and literature are available

R. T. VANDERBILT CO., INC. Specialties Dept. 230 PARK AVE., NEW YORK 17, N. Y.

Acetal Insecticides

A number of compounds containing the 3,4-methylenedioxyphenyl radical linked to a cyclic acetal ring were prepared and tested, usually in admixture with a low concentration of pyrethrins, for insecticidal effectiveness against houseflies (*Musca domestica* L.) by the Peet-Grady method. Of fourteen cyclic acetals of piperonal studied (including two analogs in which oxygen of the cyclic acetal ring is replaced by sulfur or by nitrogen) the most active were found to be those formed from 2-methyl-2,4-pentanediol, pinacol, glycerol, *n*-butyl ether, and 2,3-butanediol, by reaction with piperonal, and also a more complex cyclic acetal, 2-(3,4-methylenedioxyphenyl)-5-methyl-5-*n*-caproylamino-1,3-dioxane. The cyclic acetal of 6-bromopiperonal and 2-methyl-2,4-pentanediol were found less active than the cyclic acetal of piperonal and this glycol.

Colloidal DDT

Colloidal dispersions of DDT contained 40 per cent of DDT, 20 of a mixture of a saturated hydrocarbon petroleum distillate and alkylated aromatic hydrocarbons, 3-6 of nonionic emulsifying agent, and 34 per cent of water. The particles were mostly 1 micron in size, but some were 30 microns long and 2-3 wide.

At 1 and 2 pounds per 100 gallons of water, colloidal DDT, emulsifiable DDT, and micronized wettable DDT were equally effective against houseflies in laboratory tests. At 0.25 pound per 100 gallons of water the toxicity of colloidal DDT was lower than that of the other two forms, but higher than that of pulverized wettable DDT. Advantages of the use of colloidal DDT are discussed. G. S. Kido and T. C. Allen, *Agr. Chemicals* 2, No. 6, 21-3, 67, 69 (1947).

Protective Clothing

Thin cotton gloves and squares of khaki cotton twill cloth were treated with dimethyl phthalate, and a 6-2-2 mixture which consisted of 60 per cent dimethyl phthalate, 20 of "Rutgers 612," and 20 of "Indalone," in order to determine the efficacy of the cloth for protection against mos-

quitoes. The dosages varied from 0.25 to 10 ml. per glove or piece of cloth. When test individuals wearing the gloves were exposed to mosquitoes, a dose of 1 ml. per glove gave complete protection from mosquito bites for 5 to 6 days. The biting rate on untreated fabrics varied from 4 to 30 per one-half minute. A dose of 5 ml. per square of khaki cotton twill 12 by 12 inches, gave complete protection for 7 to 11 days. B. V. Travis and F. A. Morton, *Proc. New Jersey Mosquito Exterm. Assoc.* 33, 65.9.

Fungicides in Rubber

Fungicides suitable for use in rubber-coated fabrics for preservation of the cotton cloth against attack by mildew, include pyridyl mercuric stearate, salicylanilide, pentachlorophenol, and 2,2'-methylene-bis(4-chlorophenol). These had no harmful effect when incorporated directly in natural rubber, GR-S, and neoprene, before curing. Copper naphthenate had a weakening effect on the rubber. J. L. Stief, Jr., and J. J. Boyle, *Ind. Eng. Chem.* 39, 1136-8 (1947).

Phenolic Germicides

To cresol, phenol, hexyl resorcinol, or thymol, add an inorganic oxidizing agent such as ferric chloride or manganese chloride which will give a soluble end product. In this way sparingly soluble germicides are made more soluble. This increases the germicidal properties, especially of cresol and phenol, so as to permit dilution with water 2-3 times without altering the germ-killing value. A. J. Salle and H. L. Guest. U. S. Patent No. 2,420,099.

Testing Tick Repellents

The repellent action of chemical substances to ticks is determined on a filter paper sprayed with the test material but with a central circular area left untreated. The ticks are placed on the untreated area and the number crossing into the treated area in a definite time is determined. By covering each half of the filter paper with a different compound, two materials may be compared at the same time for repellent action. P. Granett and B. Sacktor, *J. Econ. Entomol.* 40, 259-63 (1947).

Estimation of Germicides

Of particular importance to the sanitary engineer and public health officer is a test for quaternary ammonium germicides which is rapid and which requires no elaborate apparatus, since these agents are used more and more for sanitizing eating and drinking utensils, and dairy and food-processing equipment. To meet this need, a turbidimetric method is applied as follows: To an equal volume of test solution is added a neutralizing agent. In the event a precipitate results, the mixture is clarified by filtration through paper. One drop of horse-serum reagent is added to 1 ml. of the clear solution and the presence or absence of turbidity noted. Addition of 10 per cent aqueous safranin to give a final concentration of 4 per cent in the horse serum facilitates ease in reading the degree of turbidity; chloroform will serve as a preservative for the serum.

The method showed marked turbidity for 1,000 p.p.m. (1:1000) of benzalkonium chloride solution, down to a trace of turbidity with 166 p.p.m. (1:6,000), and no turbidity with 125 p.p.m. (1:8,000). The method appears to be more reliable than the colorimetric method for quaternary ammonium compounds. J. F. Gain and C. A. Lawrence, *Science* 106, 525-7 (1947).

Molded Insect Repellent

A nucleus of solid paraffine containing a volatile agent is coated with naphthalene. For example, a mixture is made of 1 gram of paraffin and 2 grams of citronella oil, molded into cylinders and coated with naphthalene by repeated immersion. The oil evaporates after 50 days and is then gone. N. V. Chem. Fabriek Rids, Dutch Patent No. 59,900; through Chem. Abs.

Killer for Vermin

A product for the destruction of vermin contains waste tobacco dust low in nicotine (0.3-0.5 per cent) mixed with an ester such as phenyl salicylate and an adhesive such as paraffin, in the proportions 85:10:5. J. W. Dranich and P. A. Nocker, Belgian Patent No. 449,023; through Chem. Abs.



CRESOL U.S.P.

Barrett Cresol U.S.P. is refined especially to meet U.S. Pharmacopoeia requirements and employed in the manufacture of soluble-type disinfectants, which are widely used in public buildings, hospitals and by doctors for disinfecting surgical instruments, and equipment, etc. Cresol U.S.P. gives a clear solution in water.

U. S. P. CRESOL
CRESYLIC ACID
U. S. P. PHENOL
TAR-ACID OILS
NAPHTHALENE

PYRIDINE
XYLOL
CYCLOHEXANOL
HI-FLASH SOLVENT
PARACHLOROMETACRESOL

THE BARRETT DIVISION
ALLIED CHEMICAL & DYE CORPORATION
40 Rector Street, New York 6, N. Y.



Reg. U.S. Pat. Off.

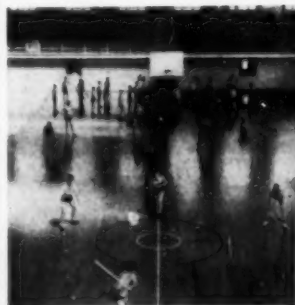
Speed Drying!

**FEDERAL
NO-BURN
GYM FINISH**
plus

added toughness

- resistance to traffic wear
- resistance to abrasion
- resistance to rubber burning
- resistance to alcohol
- resistance to alkali
- resistance to hot water
- resistance to heat
- resistance to cold
- easier to clean

a "better than ever" product



Courtesy TULANE UNIVERSITY
New Orleans

**FEDERAL
VARNISH
DIV.**

ASHLAND AVENUE
AT 29TH STREET
CHICAGO 8
ILLINOIS

New Lab. Grinding Mill

A new, specially designed, popular price mill for laboratory use in the grinding of analytical samples was announced recently by Pulverizing Machinery Co., Summit, N. J. The new unit, known as the "Mikro-Sampl-mill," was developed in collaboration with representatives of the Bureau of Plant Industry, Soils and Agricultural Engineering, U. S. Dept. of Agriculture. The new mill comes in two models, one for bench use, the other, a floor model, is equipped with legs and ball bearing casters for handy use in any part of a laboratory or plant. Both models have extension cord for plugging into a 110 volt line.

The "Mikro - Samplmill" was designed primarily for pulverizing analytical samples of mixtures up to seven per cent of free moisture. Liberal use of stainless steel and smooth interior surfaces afford protection against contamination, according to the manufacturer. Complete and thorough cleaning between batches takes only a few minutes, depending on the nature of the material ground.

Quat. Ammonium Studies

New data on the relative efficiency of a representative series of quaternary ammonium compounds used as sterilizing agents against vegetative cells of food-contaminating organisms are included in the recently released report covering activities of the New York State Agricultural Experiment Station, Geneva, N. Y., for the 1946 fiscal year. These compounds have been previously shown to be less effective against spores at temperatures below 100° F. In temperatures ranging from 110° to 130° F., however, the Geneva study demonstrated that many of the germicides killed completely up to 80 per cent of the suspensions of spores when the germicide was used in concentrations of 1/5,000 with a 5-minute exposure.

Optimum activity was in the range of pH 5 to 7.8 but one germicide reached a maximum of activity at approximately pH 10, indicating that this compound may be used in the presence of alkaline phosphate cleaning compounds. Continuing, the report says: "Studies on the compat-

ibility of a series of quaternary ammonium compounds and the ingredients of alkaline detergents indicates that, with the exception of one germicide, heavy precipitates occur and the germicidal action is materially reduced in the presence of hexameta-phosphates, trisodium phosphate, metasilicates and borax.

"Although the precipitates were not as pronounced in the presence of soda ash, the germicidal activities of most of the quaternary compounds are materially reduced in the presence of soda ash up to and including 0.3 per cent. It is indicated that the germicidal activity of the compounds is materially reduced in the presence of anionic wetting agents, as represented by the sulfonated alcohols.

"However, a certain compatibility is found between the quaternary ammonium compounds and a series of non-ionic synthetic detergents. In addition, it is indicated that these synthetic detergents evidence some protective action with respect to the compatibility between cationic germicides and the alkaline ingredients of cleaning compounds. Particularly is this true in the case of hexametaphosphates in mixtures of hexametaphosphates and quaternary ammonium compounds in which precipitates normally occur. The presence of non-ionic detergents results in clear solutions and the restoration of the germicidal activity of the quaternary compounds."

Cyclic Acetals

Seventeen compounds containing the 3,4-methylene dioxyphenyl radical linked to a cyclic acetal were prepared and tested against adult houseflies in a Peet-Grady apparatus. The compounds were dissolved in a purified petroleum distillate or in a mixture of the distillate and acetone for the insecticidal tests. A pyrethrum extract equivalent to 0.025 gram of pyrethrins per 100 ml. was usually added to each test solution to provide knockdown and to show synergistic activity if it existed. The percentage kill in 24 hours varied from 30 to 61 per cent. E. A. Prill, A. Hartzell, and J. M. Arthus, *Contrib. Boyce Thompson Inst.* 14, 397-403 (1947).

Spraying with DDT

For control of psychodid flies two attacks are recognized, spraying of the adjacent surroundings in an attempt to kill adult flies, and spraying filter media to kill larvae. Spraying of walls and nearby surfaces did not give results which could be relied on, particularly when winds carried the flies wide or rains washed away the DDT. At Beaver Dam, Wis., a dose of 1 p.p.m. applied continuously as an emulsion to filter influent for 2 hours, produced no immediate effect but completely eliminated larvae after 3 days. Ten days afterward a severe fly nuisance occurred. This experience indicated application every 7 days. Tests on 5-day B.O.D. showed no impairment. A 10 per cent DDT solution in xylene sprayed over 500 square feet per ounce of DDT was unsatisfactory. The receiving stream should be considered so as to provide sufficient dilution to protect aquatic life. L. F. Warrick and G. F. Bernauer. *Water & Sewage Works* 93, 329-32 (1946).

WALKWAY SURFACES

(From Page 149)

regarded as satisfactory. Higher antislip coefficients were obtained for waxed asphalt tiles than for untreated tiles when tested with a rubber heel under dry conditions. All waxes used were of the water emulsion type. With a leather heel the opposite was found true except for one type of wax. Under wet conditions all of the corridors would be classed as potentially hazardous for both rubber and leather footwear and especially so when waxed. In general, the antislip properties of the waxed asphalt tile corridors improved with continued exposure to dry maintenance and normal traffic.

In conclusion, it may be stated that good antislip properties under wet conditions are usually associated with asperities which project through the film of water and thus prevent its action as a lubricant. The asperities may represent either the roughened surfaces of the walkway or footwear materials themselves or particles of embedded sand or grit.



**A Leakproof
Container** that can
be depended upon for safety in
shipping

INLAND STEEL CONTAINERS

Container No. 594Q is designed for shipping thin liquids. Unusual strength is provided by the five thickness chime made with the double seaming method of attaching head and bottom. The thinnest of liquids can be safely shipped in this drum type container that stays leakproof even with rough handling. Three styles of openings can be furnished—



No. 594Q
SCREW CAP

No. 594R
SWIVEL SPOUT

No. 594LVP
PUSH-PULL
SPOUT



INLAND STEEL CONTAINER CO.
Container Specialists

6532 S. Menard Ave., Chicago 38, Ill.

Plants at:
CHICAGO • NEW ORLEANS • JERSEY CITY

**for the best in
rug care**

Nu-Sheen

RUG SHAMPOO

*made expressly for all
delicate coverings and colors—
rugs, upholstering, fabrics*

Nu-Sheen rug shampoo is a specially prepared cleaner containing ether and alcohol for rugs, drapes, upholstery, etc. Nu-Sheen cleans by a rich, lasting foam suds that goes deep into the fabric, lifting dirt and grit to the surface. Colors come out bright in their original lustre. Fabrics are soft and fluffy.

**No Rings—No Streaks
Restores Original Lustre**

Nu-Sheen is fast

it is ready prepared and involves no lengthy methods of application. Spots and dirt go without special attention. Its simple use means quick use.

Nu-Sheen is safe

scientifically prepared to clean the finest rugs and upholstery without injury. Delicate, color-fast coverings are safe. If it's safe in ordinary soap and water, it's safe with Nu-Sheen.

*easily adaptable to hand
or mechanical type cleaning*



Peck's PRODUCTS
COMPANY

610 E. CLARENCE AVE.

ST. LOUIS 15, MO.

GERMICIDAL BEHAVIOR

(From Page 145)

benzalkonium chloride brings about the removal of viable bacteria from the sample by causing their adsorption on to the wall of the medication tube (4), the number of organisms so adsorbed is not sufficient to modify the phenol coefficient. The question remains as to what *does* constitute a "manifestly improper basis" for undue claims of relative germicidal activity as determined by the phenol coefficient test (see Klarmann and Wright (4) for evidence presented).

The data presented in our studies above show quite clearly that benzalkonium chloride is regularly germicidal for *Staphylococcus aureus* in ten minutes when diluted 1:15,000, and the "limiting dilution" was 1:30,000 or greater in 50 per cent of the series of 60 consecutive tests. The maximum limiting dilution observed in this series was 1:50,000, but in other cases we have occasionally noted effective germicidal activity at dilutions as high as 1:70,000. If we compare the series of effective limiting dilutions obtained for benzalkonium chloride with the series of effective limiting dilutions for phenol, it is clear that in no instance was 1:15,000 dilution of the former less effective than was phenol at 1:50, which would yield a basic phenol coefficient of 300. However, if the median values of 1:30,000 and 1:65 are compared, the phenol coefficient becomes 461.5. If we compare the relative activity within the zones of variation, it is apparent that doubling the dilution of the basic germicidal values of 1:50 and 1:15,000 (to 1:100 and 1:30,000 respectively) would extend phenol beyond its normal range of activity in ten minutes, while benzalkonium chloride would merely reach its median value of 1:30,000, and a further dilution of 100 per cent to 1:60,000 would be required to reach a zone of "extinction" of activity. Since practical disinfection is a function of time as well as concentration, a characteristic broad zone of variation of "limiting" dilution is not necessarily a liability to a germicidal compound, but it does add to the responsibility of testing laboratories. In

the evaluation of germicides such as the quaternary ammonium compounds by the F.D.A. procedure, any realistic assessment *must* be based upon comparison of the *collective* variations of the "unknown" germicide with the *collective* variations of the reference compound in an adequate series of observations.

The distribution of wild plusses and skips is clearly related to the statistical chances of obtaining or missing at least one organism per loopful of sample. The presence of one organism in the loopful can yield a "plus" in a position in the test which would render the test invalid. The phenol coefficient procedure is fallacious in the fact that the mere occurrence of growth (plus or minus) does not distinguish between complete inactivity, 50 per cent reduction in the bacterial population, and the reduction of the number of organisms from 800,000 per loopful (0.01 ml.) to an average of one-twentieth of an organism per loopful. A wild plus obtained from a medication tube containing an average of 0.1 organism per loopful may invalidate the test, or reduce the reported "limiting dilution" by 50 per cent. Obviously a germicide is *not* ineffective in a concentration which can reduce the bacterial population from 800,000 to 0.1 in 10 minutes; on the contrary, it is 99.99999 per cent *efficient*.

The information desired for quantitative evaluation of a germicide is: What concentration is required to kill regularly a given number of bacteria in a given time under standardized conditions? The answer can be obtained only when a standardized number of organisms (\pm S.E. of method of counting) of a definite age is used for the inoculum, and when the number of survivors is actually determined. The assignment of an *Activity Index* based on the minimum effective concentration of germicide should then be possible, when agreement has been reached upon whether the percentage reduction desired shall be 99 carried to seven or nine places to the right of the decimal point. If the period of exposure is fixed at ten or fifteen minutes, and extinction of the population as indicated by subculture of the entire medication mixture is the goal,

irregularities will continue to occur due to the variation in susceptibility and survival time of a minute portion of the enormous population under attack.

Conclusions

1. Analogous quantitative and qualitative variations are encountered in determining the germicidal activity of phenol and the quaternary ammonium compound, benzalkonium chloride, by means of the F.D.A. Phenol Coefficient procedure.

2. Evidence is offered to refute the contention that the high phenol coefficient value of a quaternary ammonium germicide is "fallacious" and due to massive adsorption of the test organism upon the glass container.

3. The quantitative and qualitative variations encountered in routine phenol coefficient tests are primarily due to variation in the relatively small number of surviving bacteria and to the statistical chances of including at least one or more test organisms in the sample removed for subculture. Variation in the susceptibility of the individuals composing the population of the inoculum accounts for the few survivors after a relatively short exposure to germicide.

4. The evaluation of germicides requires a test procedure which is quantitative rather than qualitative, and one in which these two factors are not confused as they are in the conventional phenol coefficient procedure. Quantitative evaluation of a germicide requires reliable data on the number of organisms in the inoculum, and the number of organisms (if any) surviving after exposure to a given concentration for a standard period of time.

REFERENCES

1. U. S. Food and Drug Administration, 1941. "United States Food and Drug Administration Methods of Testing Antiseptics Disinfectants." Circular No. 198.
2. Klarmann, E. G., and Wright, E. S., 1946. "An Inquiry Into the Germicidal Performance of Quaternary Ammonium Disinfectants." *Soap and Sanitary Chemicals*, 22, 125-137, January.
3. Klarmann, E. G., and Wright, E. S., 1945. "Synthetic and Semi-Synthetic Media for Disinfectant Testing."

2 TWO BIG PROFIT ITEMS 2 For Jobbers

Industrial PASTE WAX

Packed in 30 lb. steel pails at 16c per lb.
Bufts easily to high gloss.
Can be used on all types of floors except
rubber or asphalt tile.
Meets government specification PW 158.
All prices F.O.B. New York.

Water Base PASTE WAX

For Rubber and Asphalt Tile
25c per lb. in 35 lb. steel kegs
All prices F.O.B. New York.

Twin City Shellac Co.

Also Manufacturers of:
Industrial No-Rubbing Floor Wax
Long Life No-Rubbing Floor Wax
Bub-L-Up Floor Cleaner
340 Flushing Ave.

Commercial No-Rubbing Floor Wax
Liquid Prepared Polishing Wax
Wax-Base Floor Cleaner
Heavy Cream Furniture Polish
Brooklyn 5, New York

KNOCKOUT SELLERS!



Be Ready For Compulsory Fire
Regulations Governing Your City

PER-MO FLAME PROOF LIQUID

MEETS THE REQUIREMENTS . .

Approved by Kansas City,
Missouri, Fire Marshal

Guaranteed to prevent fire from spread-
ing. Does not harm fabrics, decorations,
etc., that water will not harm. Spray or
dip! Packed in bulk or to your request.



★ ★ ★

PER-MO MOTHPROOF LIQUID

Fast repeater! Odorless! Guaranteed to prevent and
protect all wool fabrics from moth and carpet beetle
damage for 5 years! Packed in bulk or to your request.



ANTU RAT BITS

with FAMOUS ANTU

Sure death to rats—a cooked prepared bait
made with assorted flavors. Packed in bulk,
4 oz. and 16 oz. containers.



NEW . . . "CHEK" DEODORANT FOR PUTREFACTIVE ODORS

PER-MO PRODUCTS CO.

Original Makers of Per-Mo Mothproof Liquid
3602-04-S Woodland, Kansas City 3, Mo.

"CHEK" is a powerful deodorant for putrefactive odors
(odors of decayed animal and vegetable matter), human
and animal odors, urine, excreta, etc.

WRITE TODAY. FULL
PARTICULARS FIRST LETTER

Soap and Sanitary Chemicals, 21, 113-119, January.

4. Klarmann, E. G., and Wright, E. S., 1946. "Quaternary Ammonium Germicides. Comparative Methodological Studies Show the Original F.D.A. Method of Disinfectant Testing to be Unsuitable for Quaternary Ammonium Compounds." Soap and Sanitary Chemicals, 22, 139-149 and 163, August.

5. Rahn, Otto, 1945. "Injury and Death of Bacteria by Chemical Agents." No. 3 of Biodynamics Monographs, Normandy, Mo.

6. Baker, Z., Harrison, R. W., Miller, B. F., 1941. "Inhibition by Phospholipids of the Action of Synthetic Detergents on Bacteria." Jour. Exp. Med., 74: 621-637.

7. Gershenfeld, L., and Milanick, V. E., 1941. "Bacterial and Bacteriostatic Properties of Surface Tension Depressants." Am. J. Pharm., 113, 306-326.

DOG SOAPS

(From Page 38)

extend the shelf life of dog soaps and also improve the insecticidal efficiency.

Of definite interest in this connection is work now being done by the Insecticide Division of Dodge & Olcott, Inc. with their 'Pyrenone' concentrates. Notable for their freedom from toxicological hazards, these products contain either piperonyl butoxide or piperonyl cyclohexenone in association with suitable proportions of pyrethrins. In preliminary but promising experimental studies, these Pyrenones have been used in neutral soaps for shampoos for animals. Normal amounts of soap used for washing dogs were found to be effective in killing all fleas on the animals. Artificial aging tests suggests that the Pyrenones are very stable when used in this manner. The final outcome of these studies and more specific data on their use in dog soaps may have a very definite influence on the formulation of future products.

At present, at least insofar as dog cleaners are concerned, lack of stability limits the use of these botanical insecticides by themselves to admixture with dry, powdered soap or incorporation in a dry cleaner. Some years ago, a product was placed on the market consisting of pyrethrum and derris powder mixed with dry powdered soap. In this form the soap has less tendency to affect the insecticidal ingredients. A substantial quantity of the mixture was used to work up a heavy lather, this lather being allowed to remain on the dog's coat for as long

as twenty minutes. According to one report, (4) this product and procedure proved to be a fairly effective treatment for eliminating fleas.

Thoughts along these lines bring to mind the fact that a soap-derris wash or dip is a highly effective and well-recommended (2, 25) method for combatting fleas and ticks on dogs. In this established procedure, one ounce of mild, neutral soap—preferably in flaked form—and two ounces of fine derris or cube powder (containing 3 per cent rotenone) are mixed with a gallon of water. This is applied to the animal as a wash or dip. The surplus water is removed with a towel and the remaining solution is left on the animal and allowed to dry.

Obviously, this should suggest the possibility that the derris-soap flake mixture could be dispensed for addition to the requisite quantity of water. The product could be dispensed in bulk or in individual units for single baths. Should it be found that the soap adversely affects the insecticide's stability, the ingredients could be dispensed in separate, proportional units for admixture just prior to use. Such a product would offer definite advantages with regard to convenience and efficiency.

Tests (25) have shown that a synthetic detergent (sodium lauryl sulfate) could also be used to make effective solutions. Used in the same proportion as soap, the synthetic material dissolved more readily than soap in cold water, but the derris remains in suspension longer in the soap solution.

The use of botanical insecticides in dry cleaning powders or dry shampoos is illustrated in the following product, which is said (18, 26) to be especially suitable for puppies too young to be bathed:

	Parts
Degreased starch	75
Silica gel	10
Borax or sodium bicarbonate	10
Pyrethrum powder	5

About one per cent of a perfume compound is added to this dry shampoo. A recommended mixture contains thymol, laurel oil and eucalyptus oil.

The advent of DDT gave promise of a new and effective weapon for fighting fleas and lice on dogs. Different species of animals vary in their

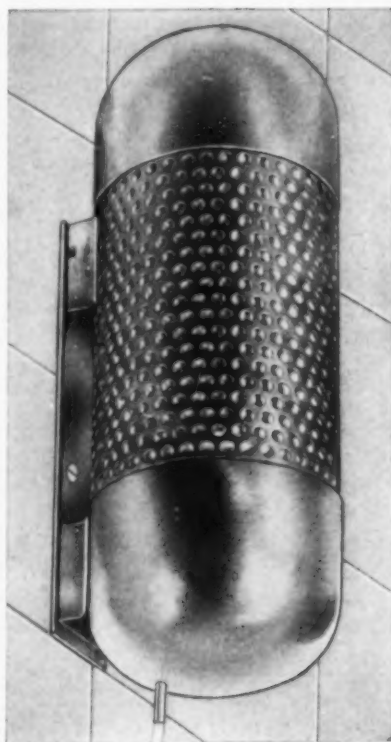
toxic susceptibility to this insecticide but, as noted by Kirk, (27) dogs apparently are fairly resistant to it. Despite its well demonstrated efficiency and comparative safety, the idea of incorporating DDT in a soap did not occur to investigators until about 1944. Noting that DDT produced insecticidal effects on clothes after repeated laundering, it occurred to a group of English workers (28) that animal hair might behave in the same way and that useful results might be obtained by the simple expedient of incorporating the material in soap.

Using various proportions of DDT milled with household soaps, practical washing tests were made on twelve dogs, including long-haired breeds. All the animals were infested either with the dog flea or the dog louse; infestation ranging from slight to heavy. The dogs were washed with the experimental soap and warm water for 10 to 15 minutes, then rinsed and dried in the usual manner. All fully grown parasites on the dogs were killed by this treatment. Seven of the dogs were kept under observation for a period of three months, but only one became re-infested even though all were freely exposed. It was evident that a high degree of immunity to these insects could be conferred to dogs by the use of the DDT-containing soap.

To estimate the amount of residual insecticide, analyses were made on hair samples. It was found that 0.05 to 0.07 per cent of DDT had remained on the hair. In commenting on the lasting effects produced by these surprisingly small amounts of DDT, it was pointed out that in a concentration of only 0.01 per cent in clothing, the insecticide is noticeably toxic to lice. In reporting these studies no data were given regarding the proportion of DDT used. Perhaps this can be explained by the fact that the use of DDT in soap is the subject of a British patent application.

Apparently, except for these investigations and those being made with the Pyrenones, very little work has been done toward incorporating other, newer insecticides into soaps for use on dogs. Of course, many factors must be considered, such as toxicity, compatibility and odor, when insecti-

New!!!
"McCurley"
DEODORIZING
APPLIANCE



Modern design—
Moderate price—

Chrome plated heavy gauge steel construction with entirely new self-locking wall attachment. Capacity . . . approximately one month supply drip fluid.

Now ready for market.

GARNET CHEMICAL CORP.

919 N. Lumber St.

Allentown, Penna.

Largest manufacturers of drip machines since 1911

REILLY

COAL TAR CHEMICALS

... for the Soap and

Disinfectant Industries

XYLENOLS

- Low boiling, high boiling and symmetrical Xylenols

CRESYLIC ACIDS — Reilly produces the entire range of Cresylic Acids—in standard grades or to buyers' specifications.

CRESOLS—U. S. P., Meta, Para, Ortho and special fractions—to all specifications.

TAR ACID OILS—In all grades, from 10% to 75% tar acid content, or of specified phenol coefficient, carefully blended.

NAPHTHALENE—Crude and refined prime white Naphthalene, in chipped, crystal, flake and powdered form.

Send for your copy of this booklet
 (second edition) describing REILLY
 Coal Tar Chemicals.



REILLY TAR & CHEMICAL CORP.

• Merchants Bank Bldg., Indianapolis 4, Ind.

• 500 Fifth Ave., New York 18, N. Y.

• 2513 S. Damen Ave., Chicago 8, Ill.

cides are used for such purposes. Benzene hexachloride, for example, has a low toxicity for animals, (29) is effective against lice, ticks and mites, (30) and probably could be successfully added to soap. (31) Nonetheless, despite these excellent characteristics, it is practically excluded from the dog soap field because of its unpleasant and persistent musty odor.

Chlordane will effectively control such animal pests as chiggers, some species of mites, ticks and is being investigated for its effectiveness against lice. (30) It might rate further study for inclusion in dog soaps. Many new insecticides are being developed and no doubt some of them will be suitable for use in better and more efficient dog soaps.

MEDICATED dog soaps require only brief comment. The manufacture of such products does not differ materially from those designed for human use. (8) These have been discussed in some detail in this publication. (32) It should be noted, however, that there is a marked tendency for manufacturers to include medicinal agents in general-use dog soaps. With the few possible exceptions already considered, such inclusions are seldom warranted and may actually be a factor in the causation of irritation. There is a definite though rather restricted field for medicated dog soaps in the treatment of certain skin disorders. At that, these rather specialized products are best used only on the advice of a veterinarian who is qualified to make a proper diagnosis, otherwise more harm than good may result. Thus, while a sulfur or tar soap may be helpful for treating seborrhea or dandruff, such soaps may prove quite detrimental when used in cases of dog eczema. In this latter type of skin disorder, authorities (3) stress the importance of using only a mild or superfatted soap, and then only when actually necessary to maintain cleanliness and eliminate aggravating substances.

Bibliography

- (1) Dykstra, R. R.: "Animal Sanitation and Disease Control," Danville, Interstate, 1946, pp. 142-3.
- (2) Symposium: "Keeping Livestock Healthy," Yearbook of Agricul-

- ture 1942, Washington, Dept. Agri., pp. 1174-1202.
- (3) Muller, G. & Glass, A.: "Diseases of the Dog and Their Treatment," Ed. 4, London, Bailliere, Tindall & Cox, 1923, pp. 442-459.
- (4) Anon: Soap 12:33, Nov. 1936.
- (5) McCulloch, E. C.: "Disinfection and Sterilization," Ed. 2, Philadelphia, Lea & Febiger, 1945, pp. 214, 361.
- (6) Busvine, J. R.: Pharm. J. 154:11, 1945.
- (7) Hearle, E.: "Insects and Allied Parasites Injurious to Livestock and Poultry in Canada," Publ. 604, Ottawa, Dept. Agri., 1938, pp. 66, 73.
- (8) Thomssen, E. G. & Kemp, C. R.: "Modern Soap Making," New York, MacNair-Dorland, 1937, pp. 217-226, 242-3.
- (9) Lesser, M. A.: Soap & Sanit. Chem. 21:41, Apr. 1945.
- (10) Lesser, M. A.: Soap & Sanit. Chem. 22:37, May 1946.
- (11) Alperin, S.: Am. Perf. & Essent. Oil Rev. 50:53, July.
- (12) Thomssen, E. G.: Soap & Sanit. Chem. 22:36, March.
- (13) Boyle, J. L.: Manuf. Chem. 15:88, 1944; also Soap & Sanit. Chem. 20:57, May 1944.
- (14) Ekmann: (through) Soap & Sanit. Chem. 15:57, June, 1939.
- (15) Bennett, H.: "Chemical Specialties," New York, Chem. Publ. Co., 1946, pp. 260-1.
- (16) Anon. Chem. & Drug. 127:425, 1937.
- (17) Forrester, G. P.: "Pharmaceutical Formulas," Vol. II, Ed. 10, London, Chem. & Drug, 1934, pp. 779-780.
- (18) Bennett, H.: "Chemical Formulary," New York, Chem. Publ. Co., Vol. VI, p. 114, Vol. IV, pp. 118, 502.
- (19) Anon: Drug & Cosmetic Ind. 57:852, 1945.
- (20) Mallis, A.: "Handbook of Pest Control," New York, MacNair-Dorland, 1945, p. 389.
- (21) Mail, G. A.: Chem. Ind. 61:400, 1947.
- (22) Bishopp, F. C.: J. Econ. Entomol. 39:449, 1946.
- (23) Haller, H. L.: Ind. & Eng. Chem. 39:467, 1947.
- (24) West, T. F.: Chem. & Ind., Aug. 12, 1944, p. 290.
- (25) Smith, C. N., Cole, M. M. & Gouck, H. K.: "Biology and Control of the American Dog Tick," Tech. Bull. No. 905, Washington, U. S. D. A., 1946, pp. 54-7.
- (26) Anon.: Schimmel Briefs, No. 125, Aug. 1945.
- (27) Kirk, H.: Vet. Rec. 58:465; also Vet. Med. 42:76, Feb. 1947.
- (28) Campbell, G. A., Hymes, F. C. & West, T. F.: Nature, 156:749, 1945; also Chem. Trade J. & Chem. Eng. 117:740, 1945.
- (29) Kirk, H.: Vet. Rec. 58:43, 1946.
- (30) Knipling, E. F.: Soap & Sanit. Chem. 23:127, July, 1947.
- (31) Matthyse, J. C.: Personal Communication.
- (32) Lesser, M. A.: Soap & Sanit. Chem. 20:33, Oct. 1944.

CAUSTIC POTASH

(From Page 33)

petition of improved potash from Europe. Foreign controlled agencies had two main weaknesses. They were not

in a position to guarantee the quantity of the improved product, which often varied from shipment to shipment. Since they were largely set up for buying and selling, they did not have available technical control which was geared to American needs.

The new companies in the United States were quick to capitalize on these weaknesses by offering immediate technical assistance in the handling of special problems and in the development of specifications to fit particularly exacting needs. An example of this was the building of a plant to supply a special brand of caustic potash with low chloride content to meet the needs of a customer who manufactured batteries. Domestic suppliers also got the jump on their foreign competitors by selling consumers on the economies in the use of liquid caustic potash. Liquid potash offers an economic advantage over the solid forms except in cases where the freight charges on the water of the solution exceed the differential in price. In addition, the liquid is advantageous because of its simplicity of handling. All in all, caustic potash users in the United States found it safer to buy a domestic brand and the future of the new companies was assured. This is an outstanding example of American ingenuity in the chemical industry meeting and beating powerful foreign competition.

AT the outset of World War II, the users of caustic potash, doubtlessly fearing a repetition of the feverish days of 1915-1918, were jittery about the future availability and cost of the commodity. But the potash chemical industry was now definitely American from raw material in the ground to finished product. Supplies were kept adequate to meet all normal needs, prices did not get out of bounds, and quality of product remained unsurpassed. In tables 1 and 2 are shown data on supply, imports and domestic production of potash muriate from 1936 to 1947 (K_2O equivalent). Table 3 shows price figures for caustic potash have remained low and varied little in the past 22 years. Table 4 points out the same picture for carbonate of potash.

A Fortified Soap

NAMICO
T. M. REG. U. S. PAT. OFF.

"TRISOAP"

T. M. REG.

"A Complete Powdered Soap"

LAUNDRY — INSTITUTIONAL — LAUNDERETTE

Strong, Stable Suds Safely Used On All Fabrics

Superior Performance in Hard Water

A Superior Hand Dishwashing Soap

Soap Flakes

Soap Powders

Dishwashing Compounds

Detergents

Yellow Bar Soap

NATIONAL MILLING & CHEMICAL COMPANY

4601 NIXON STREET

"SINCE 1896"

PHILADELPHIA 27, PA.

Carnauba Competition . . .

BETTER IN EVERY RESPECT:

REFINED CONCORD WAX 159

FOR WATER WAX EMULSIONS

- **GLOSS**
- **WATERPROOF**
- **DURABILITY**
- **STABILITY**
- **UNIFORMITY**
- **84°C MELTING POINT**

AT LOWEST MANUFACTURING COST

SEND FOR INFORMATION AND SAMPLES

NO OBLIGATION



CONCORD CHEMICAL COMPANY

INDEPENDENCE SQUARE

PHILADELPHIA 6, PA.

Total production of muriate of potash (Table 2) in 1939 was about 312,000 short tons. Output expanded to 524,900 short tons in 1941 and then to 679,200 tons in 1942. In 1944 the total had reached 834,568 tons. In the space of five years, production was expanded by 522,368 tons, an increase of 167 per cent (2). All this was done without government financing at a time when fully three-fourths of the plant expansion required for war production was being met by government funds.

TABLE 1
Potash Supply—World War I
(Thousands of short tons)

Year	Total Supply	Imports	Domestic Production	Price Range \$/unit K ₂ O
1913	255	255	—	.76
1914	194	194	—	.78
1915	43	42	1	1.18-9.87
1916	11	1.3	9.7	5.98-9.27
1917	33	0.5	32.5	6.76-8.66
1918	55	0.2	54.8	5.64-6.90
1919	61	29	32	2.17-5.54
1920	246	198	48	2.13-2.93

Derived from figures of U. S. Bureau of Mines and Dale C. Kieffer, "Potash Report," 1941.

TABLE 2
Potash Supply—Up to and including World War II
(Thousands of short tons)

Year	Total Supply	Imports	Domestic Production
1936	459	212	247
1937	636	351	285
1938	511	194	317
1939	412	100	312
1940	495	115	380
1941	538	13	525
1942	683	4	679
1943	756	17	739
1944	840	5	835
1945	880	6	874
1946	936	4	932
1947	—	—	536

Derived from figures "Minerals Year-books" and The American Potash Inst.

ALTHOUGH raw material costs in the post-war period have not advanced a great deal, labor charges, freight rates and equipment costs have increased. Greater production facilities have resulted in lower production costs, however, and this has served somewhat to balance off increases in other costs. An increase of 10 per cent in freight rates occurred early in the fall of 1947 and another increase of perhaps 15 per cent is quite likely.

How about the future outlook for imports? No tariffs protect the

TABLE 3
Average Net Price Received After Freight Equalization
Caustic Potash—Basis 90%

Year	Solid	Liquid
1925	7.11	7.36
1926	7.13	6.82
1927	7.25	6.74
1928	7.14	6.76
1929	6.75	6.44
1930	6.10	5.78
1931	5.94	5.73
1932	5.86	5.63
1933	5.93	5.60
1934	6.11	6.25
1935	5.50	5.78
1936	5.15	5.83
1937	5.20	5.61
1938	5.21	5.55
1939	5.30	5.60
1940	5.48	5.69
1941	5.63	5.79
1942	6.18	5.72
1943	6.21	5.72
1944	6.20	5.68
1945	6.15	5.58
1946	6.08	5.68
1947—8 months	6.68	6.19

TABLE 4
Average Net Price Received After Freight Equalization
Carbonate of Potash—Basis 98%

Year	Hydrated	Calcined	Liquid
1934	7.69	5.94	
1935	6.54	6.39	5.21
1936	6.24	6.58	5.12
1937	5.98	6.26	5.10
1938	5.88	6.23	5.15
1939	6.00	6.26	5.39
1940	6.13	6.13	5.58
1941	6.39	6.47	5.54
1942	6.35	6.48	5.47
1943	6.35	6.40	5.50
1944	6.33	6.39	5.50
1945	6.35	6.33	5.53
1946	6.42	6.34	5.51
1947—8 months	6.79	7.13	6.10

American producers of muriate. There is a possibility that the potash production in the leading countries of Europe will be government-owned-and-controlled and that potash may be dumped in the United States in order to create dollar exchange (2). There is the further possibility that potash, received in the form of reparations, may be sold direct to American users. And there is always the possibility of powerful new potash cartels being formed in the future by the countries in Europe. A method of protecting the American potash industry against such possibilities would be the establishment of an import quota system based on consumption of potash in the United States, a subject now under discussion.

The record of the potash industry demonstrates that it has been able to meet effectively the demands of its

customers by expanding production rapidly. At the same time, the long-term trend of prices has been downward and wartime prices remained unusually stable. There thus appears no basis in fact to justify the insistence of certain groups that the government should intervene in this industry on a major scale. In the words of Willard L. Thorp and Ernest A. Tupper, U. S. Department of Commerce, who submitted a report on the potash industry to the Department of Justice in May, 1940: "It appears that the potash industry has demonstrated clearly those factors of pioneering development, technological advance, and responsible management which represent the highest expression of American industry."

References

1. "Caustic Potash," S. W. Jacobs, Niagara Alkali Co., paper presented before National Association of Insecticide and Disinfectant Manufacturers, Dec. 5, 1939, Washington, D. C. (*Soap and Sanitary Chemicals*, February, 1940, P. 117).
2. "The Economics of the Potash Industry," Jules Backman, New York Univ. School of Commerce, Accounts and Finance, 1946, American Potash Institute.
3. "This Chemical Age," Williams Haynes, 1942, Alfred A. Knopf, Inc., New York, Chapter XX.

FEDERAL TRADE COMMISSION (From Page 125)

In a recent statement of policy the Commission said:

"It is the policy of the Commission to utilize the trade practice conference and stipulation procedures to encourage widespread observance of the law by enlisting the cooperation of members of industries and informing them more fully of the requirements of the law, so that wherever consistently possible the Commission may avoid the need for adversary proceedings against persons who through misunderstanding or carelessness, may violate the law unintentionally. But it is not the policy of the Commission to grant the privilege of settling cases through trade practice conference or stipulation agreements to persons who have violated the law; where such violations involve intent to defraud or mislead; false advertisement of foods, drugs, devices or cosmetics which are inherently dangerous or where injury is probable; suppressions or restraint of competition through conspiracy or monopolistic practices; or violations of the Clayton Act; nor will the privilege be granted where the Commission is of the opinion that such procedure will not be effective in preventing continued use of the unlawful methods, acts or practices."

At your service WITH QUALITY PRODUCTS

**DISINFECTANTS
and DEODORANTS**

Coal Tar Disinfectant
Pine Oil Disinfectant
Odorless Disinfectant
Deodorant Blocks
Urinal Blocks
Perfume Sprays

INSECTICIDES

Fly Spray
Moth Spray
Insecticide
D.D.T. Sprays

DEODORANTS



WAXES



WAXES

Non-Rubbing Wax
Prepared Liquid Wax
Prepared Paste Wax
Powdered Dance Wax

POLISHES

Metal Polish
Furniture Polish
Bar Oil Polish
Lemon Oil Polish
Silver Paste Polish
Cedar Oil Polish

LIQUID HAND SOAP LIQUID FLOOR SOAP

DISTRIBUTORS HUDSON SPRAYERS • BOBRICK SOAP DISPENSERS

MANUFACTURERS FOR THE JOBBERS

WRITE FOR OUR DESCRIPTIVE CATALOGUE AND PRICE LIST

UNCLE SAM CHEMICAL CO., INC.

575 WEST 131st STREET

1920-1948

NEW YORK 27, N. Y.



**YOUR SAFE WILL BE FILLED WITH
MONEY**

IF YOU OFFER

WASHBURN'S

FLOOR MAINTENANCE LINE

**OF CLEANERS — SEALS — FINISHES and WAXES
UNDER YOUR OWN LABEL IN 1948**

**OUR NEW BOOK — HAND BOOK FOR SALESMANAGERS — IS JUST
OFF THE PRESS — IT EXPLAINS USES, APPLICATION and HOW TO SELL**

Write today for your free copy

T. F. WASHBURN COMPANY

2244 ELSTON AVENUE

CHICAGO, ILLINOIS

Starts Polish Firm

Charles D. Roselius recently resigned as vice-president-treasurer, sales manager and a director of S. S. Stafford, Inc., New York, to enter the polish field, manufacturing an emulsion-type polish. The new product will be marketed under the name of Shield-All Co., Corona, N. Y. Mr. Roselius spent more than 31 years with S. S. Stafford, Inc., most of his experience being in the household production division.

Neptun Resigns NAIDM Bd.

R. P. Neptun of S. B. Penick & Co., New York, who was elected a member of the board of governors of the National Association of Insecticide & Disinfectant Manufacturers at the recent annual meeting in Baltimore, has advised the board that because of the press of new business duties he will be unable to serve. The board will act to fill the vacancy at its next meeting.

Varley Heads St. L. Assn.

Jack Varley, James Varley & Sons, Inc., St. Louis, was elected president of Associated Drug & Chemical Industries of Missouri, Inc., at the group's annual meeting held December 10 at St. Louis. Other officers included Marvin Yates, Marvin Yates Co., 1st vice-president; Neal Draper, Solvay Sales Corp., 2nd vice-president; O. W. Rash, Lambert Pharmacal Co., 3rd vice-president; J. Louis Lanz, J. L. Lanz Co., treasurer; and John A. Mueller, S. Pfeiffer Mfg. Co., secretary. The organization is composed of representatives of 145 Missouri firms engaged in the drug, cosmetic, industrial chemical and allied fields.

USI Elects Marsh

Election of William P. Marsh, Jr., as executive vice-president, U. S. Industrial Chemicals, Inc., New York, was announced January 5, 1948. Mr. Marsh has been a vice-president of the

company since 1943 and a director since April 1947. He joined U. S. I. ten years ago. Previous to that time, following graduation from Yale Uni-



Wm. P. Marsh

versity in 1930, he was associated with Haskins & Sells, New York. He is a member of the New York State Society of Certified Public Accountants and the Controllers Institute.

Coast CSA Elect Hockwald

Lee Hockwald, Hockwald Chemical Co., San Francisco, was elected 1948 president of the Chemical Salesmen's Association, of California, at their annual Christmas party held at the Sir Francis Drake Hotel, December 12, San Francisco. Other new officers elected were: W. H. Oliver, Stauffer Chemical Co., first vice-president; Harold Scism, Dow Chemical Co., second vice-president; Raoul J. Landry, Shell Chemical Corp., treasurer; A. W. Hempelmann, Monsanto Chemical Co., secretary.

Dodge & Olcott to USI

The insecticide and insectifuge activities of Dodge & Olcott, Inc., New York, were taken over January 1, 1948, by U. S. Industrial Chemicals, Inc., New York, making D. & O. an integral part of the U. S. I. organization. All sales of insecticide and

insectifuge products are now being handled through the U. S. I. sales offices and shipments, invoices, etc., are in the name of U. S. I. This organizational change puts the sales and distributional facilities of U. S. I. at the service of the insecticide industry and enables D. & O. to concentrate its efforts on the essential oil, perfume and flavor field. Personnel and policy changes are not involved. U. S. I.'s insecticide operations will be under the direction of Russell B. Stoddard, with John A. Rodda as assistant sales manager in charge of insecticide sales and Dr. Walter E. Dove as Director of Entomological Research.

Hyman Appoints Coe

Julius Hyman & Co., Denver recently announced the appointment of E. H. Coe as entomologist and technical representative. Mr. Coe will work out of the company's Pacific Coast headquarters, San Francisco. He served twelve years with Sherwin Williams Co., Oakland, the first six years engaging in field and orchard insecticides, and the latter six as manager of their insecticide department. His experience covers work on control of insects in stored products, grains, cereals and fruits, and in the manufacture of dust and liquid insecticides. Mr. Coe specializes in insect toxicology and plant pathology.

Bacteriologists to Meet

The date for the meeting of the American Society of Bacteriologists has been set for May 10-14, 1948, in Minneapolis.

Credit Man Honored

F. W. Meyer, credit manager, U. S. Sanitary Specialties Corp., Chicago, recently won an award of a scholarship at Northwestern University, School of Commerce, Chicago, in a contest conducted by the educational committee of the Chicago Association of Credit Men. Over a hundred credit men from various industries submitted papers covering the entire field of credits and collections and Mr. Meyer got top rating.



Self Polishing

FLOOR WAX

All Purpose Liquid Soap Type

CLEANER

Heavy Duty Liquid Soap Type

CLEANER

FURNITURE POLISH

Available in

DRUM LOTS



M & H LABORATORIES

2705 ARCHER AVENUE
CHICAGO 8 • ILLINOIS

F. O. SPECIALTY CHEMICALS



CIFON—EMULSIFIABLE SANITATION CHEMICAL

A revolutionary new sanitary chemical for garbage disposal dumps, sewage plants, chemical toilets. (Especially interesting to City Sanitation Depts.)

GERM-I-TOL—DISINFECTANT—DEODORANT

(Dimethyl benzyl higher alkyl ammonium chloride.) A powerful liquid odorless quaternary disinfectant.

CETOL—DISINFECTANT—DEODORANT

(Cetyl dimethyl benzyl ammonium chloride.) Another powerful crystalline, odorless quaternary disinfectant.

AQUA-KLOR—AQUATIC WEED KILLER — SANITATION CHEMICAL

Effective in irrigation ditches, ponds and lakes.

WRITE FOR PRICES AND PRACTICAL APPLICATIONS

FINE ORGANICS, Inc.

211-J E. 19th St., New York 3, N. Y.
GRamercy 5-1030 Cable: Melchem
Plants at Lodi, N. J. and Black Lick, Pa.



The Synthetic Detergent

MERCOL ST BEADS

NON-IONIC SYNTHETIC DETERGENTS

SOAPS

Granulated, Flakes and Solid

Special Hand Dishwashing

Yellow Laundry Bars

15 to 18% Powders

NEW LOW PRICES — INVESTIGATE BEFORE BUYING



SEABOARD DISTRIBUTORS INC.

SIXTY PARK PLACE



NEWARK 2, N. J.



Executives of Fritzsche Brothers, Inc., New York, meet before opening of annual sales meeting, December 10-12, at Hotel New Yorker, New York. (left to right) John H. Montgomery, Fred Leonhardt, Jr., F. H. Leonhardt, Sr., Joseph A. Huisking and H. P. Wesemann.

Southern PCO Meeting

The Eighth Annual Pest Control Operators' Conference is being held at Louisiana State University, Baton Rouge, Jan. 29, 30, 31, 1948. The program will feature new phases of fly, termite and rat control. Among the highlights of the meeting will be a talk by George L. Hockennoys, president, NPCA, who will speak on "Bringing Us Up to Date on New Chemicals and Formulations," and a talk by William O. Buettner, secretary, NPCA, on "Control of Dry-Wood Termites by Fumigation." Kenneth Bell, vice-president, Texas Pest Control Association, will discuss highlights of the fifteenth convention of the NPCA. Program chairman of the Southern PCO meeting is Prof. O. W. Rosewall, Department of Zoology and Entomology, Louisiana State University.

New Jersey PCA Dinner

The third annual installation dinner of the New Jersey Pest Control Association was held December 11, 1947, in Newark. Highlights of the occasion were talks by George Hockennoys, and William O. Buettner, president and secretary respectively of the National Pest Control Association. Honorary membership in the New Jersey Pest Control Association was conferred upon Dr. Bailey Pepper, research specialist in entomology, Rutgers University, for his outstanding contributions to the pest control industry. Newly elected officers of the association are: president, John K. Medoff, Hudson Exterminating Co., west New York; vice-president, Robert Campbell, Vogel-Ritt of N. J. Co., Trenton; second vice-president,

S. M. Jordan, Abadan Exterminating Co., Newark; treasurer, Harold Kutakoff, Nu-way Exterminating Co., Newark; secretary, Harry Stucker, United Chemical and Exterminating Co., Jersey City. Bernard Weening, Paragon Exterminating Co., Newark, was chairman of the dinner committee and David McAlinden, Royal Exterminating Co., Hoboken, acted as toastmaster.

Annand Warns in Report

Plants or parts of plants treated with DDT should not be fed to livestock until more is known regarding possible accumulations, stated Dr. P. N. Annand, Chief, Bureau Entomology and Plant Quarantine, U. S. Department of Agriculture, in his annual report for 1947. The same may be said for most of the newer insecticide materials about which even less information is available concerning possible hazardous effects to man, animals and soils. Dr. Annand's report went on to comment on the promising results, against a number of pests, of such insecticides as chlorinated camphene, chlordane, and a mixture of benzene hexachloride and DDT.

C. & C. Opens in Houston

To serve the growing chemical industry in Texas, Carbide and Carbon Chemicals Corporation, New York, has opened a new sales office at 1527 Esperson Building in Houston. Paul J. Doyle, Jr. has been appointed to take charge of the Houston office. Mr. Doyle has been associated with the corporation since 1940 and has recently returned from service in the Army.

Pioneer Incorporates

Pioneer Chemical Co., Los Angeles, manufacturers and distributors of cleaning compounds, insecticides, disinfectants and janitor supplies, recently announced the incorporation of their business. The company will continue to operate under the same name at the same address and eventually plans to move into a new building which is expected to be completed in about six months. In addition to office space, the new building will have two loading docks and ample yard space for trucking and storage.

Officers of the new corporation are: Murray H. Perskin, president; Clarence S. Warren, vice-president; Jack T. Silver, treasurer; Emil Roessel, secretary. Mr. Silver, who will direct the internal management and affairs of the corporation, has had twenty-five years experience in the business. Mr. Warren has been with the company over twelve years. Both were former owners. Mr. Perskin has been with the company about five years as salesmanager. He and Mr. Warren will have charge of sales promotion and salesmen. Al Younger, who has been with the company for over twelve years, is in charge of traffic and shipping.

Offers New Roach Killer

A new product toxic to roaches and other crawling insects and called "Black Flag Special Roach Spray" is being introduced by Boyle-Midway Co., Jersey City. It contains 2% chlordane, is said to be five times more toxic to roaches than is DDT, and to have about the same toxicity as DDT to warm-blooded animals. When sprayed on a surface, it leaves an invisible varnish-like film.

Charles Steed Dies

Charles Steed treasurer and a director of S. B. Penick Co., New York, died Dec. 28th in Doctors Hospital after a brief illness. He was 66 years of age. Mr. Steed had been connected with Penick & Co. since 1917. He retired about two years ago because of poor health, but had remained an officer of the company.



THE MARK OF QUALITY

1948 REQUIREMENTS

CROSBY CHEMICALS, INC., with two modern Steam Distilled Wood Naval Stores plants in full production can take care of your 1948 REQUIREMENTS of

STEAM DISTILLED WOOD TURPENTINE
TERPENE HYDROCARBON SOLVENTS

STEAM DISTILLED PINE OILS

PALE WOOD ROSINS

FF WOOD ROSIN

ALPHA PINENE

DIPENTENE

SOLTENE

Address Inquiries to

CROSBY CHEMICALS, INC.
DE RIDDER, LOUISIANA

SYNTHETIC DETERGENT FILE

A COMPLETE file on Synthetic Detergents now available on keysort 5" x 8" punched cards. Over five hundred compounds described and classified. Each card is key punched for serial number, manufacturer and the first three letters of the trade name. Cards are also coded for type, form, chemical classification, per cent active and principal uses, where such information is available. Not coded, but also included is available information on pH, surface tension, stability, solubility, hard water resistance, unusual characteristics, price, etc.

The set is supplied in a 5" x 8" x 8" metal cabinet with sorting needle, punch and code index key. Sale price includes services to maintain the set up-to-date for one year from date of purchase.

Price \$100

JOHN W. McCUTCHEON, Consulting Chemist
475 Fifth Ave., New York 17, N. Y.

Wm. Diehl & Co.

SHELLAC

Refined Bleached — Orange

CANDELILLA WAX

OURICURY WAX

CARNAUBA WAX and

High M. P. Substitutes

MONTAN WAX, Genuine

336 W. 42nd St., New York 18, N.Y.

Phone: BRyant 9-5211

FINE

AROMATIC CHEMICALS

ESSENTIAL OILS

and

COMPOUNDS

Aromatics Division
GENERAL DRUG COMPANY



644 Pacific Street, Brooklyn 17, N. Y.

9 S. Clinton Street, Chicago 6

1019 Elliott Street, W., Windsor, Ont.

Conner on Insecticide Act

The new Federal Insecticide Act was discussed by John D. Conner, General Counsel, National Association Insecticide and Disinfectant Manufacturers, before the National Drug Trade Conference, Wednesday, December 10, 1947. Mr. Conner discussed the various statutes of the act and explained a number of definitions. He summarized important points under registration, labels and labeling, coloring or discoloration, and explained how these points affect wholesalers and retailers. On the subject of the guaranty, he stated that "It should be stressed that a guaranty under this new act can be given only for an economic poison which has been registered. The supplier cannot legally give a guaranty under this act until he has registered his economic poison with the department. A guaranty will expire if the product is re-packed or re-labeled by the purchaser or when it becomes otherwise in violation of the act or regulations after shipment or delivery by the person who gave the guaranty."

Mr. Conner went on to say that many wholesalers and retailers currently have on hand abnormally large stocks. He pointed out that section three of the new law confines itself to the shipping or receiving in interstate commerce of an economic poison or, after such shipment, to the delivering

or offering to deliver such economic poison while it is still in the original unbroken package. "This will remove a large percentage of shelf stocks from



John Conner

the operation of the new act," he said. Although the seizure section of the new act, section nine, is more restrictive, Mr. Conner believed that this section would not be construed any broader than the above-mentioned section three (the prohibited acts section) except in cases involving possible injury to or fraud upon the public. Mr. Conner reported that a uniform simple procedure has been worked out for making application for exemptions and that the manufacturer is the logical person to apply for this exemption.

Monsanto Advertising Plans

Plans for the newly created advertising department for Monsanto Chemical Company were announced Jan. 5 by the company. Effective January 1, Howard A. Marple was appointed director. R. Allan Gardner, who was named assistant advertising director, also will serve as advertising and sales promotion manager for the Organic and Phosphate Divisions of the company which are located here. Edmund G. Greene will be advertising and sales promotion manager, Merrimac Division, Boston, Mass., and the same position for the plastic division at Springfield, Mass., will be filled by Edmund Kennedy. Braxton Pollard will head a newly established section for foreign advertising. William A. Lang, Spring-

field, Mass., will be transferred to St. Louis to handle exhibits and product displays, while Wilbur Grosse and William A. Rooney will be in charge of direct mail, product publications and assist all divisions.

Albert Henissart Dies

Albert V. Henissart, vice-president in charge of sales, Antoine Chiris Co., New York, died suddenly of a heart attack, December 25th, at his home in Hollis, L. I. He was 56. Mr. Henissart was, for many years, export manager for the Paris branch, Associated Merchandising Corp., and came to the United States in 1923 to join the sales department of the Chiris Co. His election as vice-president in charge of sales had been announced shortly before his death.

Packaging Show Date Set

The 17th annual packaging exposition will be held April 26-30, in the public auditorium at Cleveland, according to an announcement on December 26th by the American Management Association, New York. Approximately 200 exhibitors will display developments in packaging, packing and shipping machinery, equipment, materials, etc. The annual three-day AMA conference on packaging, packing and shipping will also be held in the Cleveland auditorium April 27-29 concurrently with the exposition.

New England PCA Elects

The annual meeting of the New England Pest Control Association was held in the Monoca Room, Hotel Lenox, Boston, on Dec. 17th, 1947. The following officers were elected to serve for 1948: president, Kenneth N. Cook, Ransford Insecticide Co., Worcester, Mass.; vice-president, Edward G. Maguire, W. A. Maguire Co., Haverhill, Mass.; treasurer, Bartlett W. Eldredge, Waltham Chemical Co., Waltham, Mass.; and secretary, Wilfred J. Mongeau, Pied Piper Service, Farnumville, Mass.

Penna PCO Meeting

The regular meeting of the Eastern Pennsylvania Pest Control Association was held Dec. 16th at the Benjamin Franklin Hotel, Philadelphia. Dr. Everett, of the American Red Cross, was the principal speaker. He discussed the activities of the Junior Red Cross with respect to the national Rat Control program, especially in the five county areas of the Philadelphia district. The association was advised that a short course on pest control operations would be held Feb. 5, 6, 7 at Penn State College, State College, Pa.

Aroscent Moves

Aroscent, Inc., importers, exporters and manufacturing chemists, announced, December 13th, a move to new and larger quarters at 58 Underhill Ave., Brooklyn 17, N. Y. Their plant and laboratories were formerly located at 118 East 28th St., New York.

New LATHER DISPENSER



Model 47

Bobrick lather dispensers and lather valves may be used with ordinary commercial liquid soap, but will operate best with a 10% solution.

Test it yourself—write for returnable sample. Same dispenser for dispensing liquid soap is available as Model 12.

1214 Nostrand Ave.,
Brooklyn 25, N. Y.
BUckminster 4-3260

1837 Blake Ave.,
Los Angeles 26, Calif.
NOrmandy 2-3188

with concealed fastenings and "eye" that tells when to refill...

For the best in lather dispensers, get the new Bobrick Model 47 with highly polished Monel metal body. No plating to wear off; no enamel to crack, and it's rust proof! Concealed wall fastenings and large locked filler cap guard against theft. Wall plate may be secured by screws or plastic rubber adhesive (no holes to drill in tile). Specially designed lucite window tells when it's time to refill.

Bobrick

SOAP DISPENSERS

Since 1906

Cresylic Acid
**HIGH BOILING
TAR ACID
CRESYLIC
CREOSOTE
NAPHTHALINE**

MIRVALE CHEMICAL CO. LIMITED
Mirfield, Yorks. Phone Mirfield 2157

BUY — SELL — TRADE CAUSTIC SODA

SOLID — FLAKE — LIQUID

SODA ASH

Also

Bichromates, Formaldehyde, Phenols, Chromic Acid, Titanium Dioxide, Naphthenic Acids, Dyestuffs

Top prices paid for chemicals listed and many others.

SANDERS & SLOAT, INC.

180 BROADWAY

NEW YORK 7, N. Y.

Phone: BEekman 3-5894

**For All
the
Facts**

**on
SPRAY
NOZZLES...**



Until you have seen this Spraying Systems Catalog, it is likely you have never had all the facts on the thousands of spray nozzles available to you. Consistently changeover to Spraying Systems Spray Nozzles has resulted in greater spraying efficiency and lower costs. In part this is due to advanced hydraulic design... but in big part it is due to no other reason than that Spraying Systems Spray Nozzles number in the thousands of types and sizes... a group so great, that for any given application, there is a spray nozzle to fit your application exactly. Prove this to yourself... write for Catalog No. 22

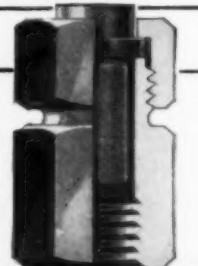
SPRAYING SYSTEMS CO.

4049 West Lake Street

Chicago 24, Illinois

**To IMPROVE
RESIDUAL SPRAYING**

Maximum effectiveness of insecticides such as DDT depends solely on proper residual spraying. Here is the nozzle that gives you an exact and uniform distribution of the spray... free of streaks. An approved design available in 1/4 T-8001, 1/4 T-8002 and all other standard capacities.



SPECIALISTS IN SPRAY NOZZLE DESIGN AND MANUFACTURE

New Moth Control Product

A new compound said to provide effective protection against moth damage and to withstand repeated washings and dry cleanings is being offered by Bocon Chemical Corp., New York. The new mothproofing compound is being sold under the name of "Boconize" to textile mills and to the fur, dry cleaning, exterminating and warehouse industries. Boconize, the salt of an aromatic amine, is a colorless non-inflammable material which is said to leave no odor on the fabric, to be unaffected by light, perspiration or salt water, and to contain no toxic compounds or cause allergic reactions. It is claimed that it causes no undesirable effects on fabric fibers. In its concentrated form, Boconize is soluble in water, yet after it has been applied to the fabric, water will not dissolve it. It can also be supplied as an emulsion soluble in solvents. After application, dry cleaning solvents will not remove it. The reason given by the company for this water and solvent fastness, is that Boconize chemically combines with the molecules of the fibers. It is said to react with the disulfide linkage on wool fibers, which is the particular part of the fiber normally attacked by moth larvae. The reaction product, apparently, is not attacked by the moth larvae. Boconize is available in both paste and liquid forms.

Tin Can Prices Raised

Price increases amounting to about 12 per cent on tin cans, depending upon types of cans purchased, will apply to contracts during 1948, an American Can Company spokesman revealed December 10th, in New York. The company's standard term contracts with all customers name a basic price for each type of can which varies only by labor differentials and the price of tin plate according to a set formula.

Emulsifier for Toxaphene

A new solubilizing agent, "Trex 45," developed for emulsifying the insecticide, "Toxaphene," normally a waxy semi-solid material, was recently announced by Griffin Chemical Co., San Francisco. Con-

centrations of 50% Toxaphene with 50% Trex 45 require only moderate agitation after addition of water for immediate field use. The emulsions are said to be stable and easily handled with ordinary spray equipment. Trex 45, according to Griffin, will also emulsify kerosene solutions of Toxaphene. Complete data on Trex 45 may be found in Bulletin T-106, issued by Griffin Chemical Co., 1000 16th Street, San Francisco.



Lambswool Sponge

A unique type of sponge made from airfoam rubber enclosed in a cover of long-pile, lamb's wool was recently introduced by Henderson & Austin, Inc., Stamford, Conn., manufacturers and marketers of automotive, industrial, hardware, farm and household equipment. Marketed under the patent name, "Lamb-sponge," it is claimed to have advantages over ordinary marine and synthetic sponges, such as greater water retention and longer life. The lamb's wool covering is sewn by a special internal-seam method using rot-proof nylon thread. "Lamb-sponge" is said to dry quickly after use, retaining its original softness. Two sizes, large and jumbo "Lamb-sponge," are being marketed through recognized jobbers, distributors and wholesalers, and nationally advertised by a trade, consumer, and point-of-sale promotion program.

Wax Studies and Tests

Most users as well as many distributors of floor wax products have only a vague understanding of the properties inherent in the basic ingredients and their contribution to the compounding of good wax products. Also the first consideration of a purchasing department is whether or not the wax product will meet or surpass the material currently in use; a second consideration is the cost of the new product. A description of the basic ingredients in floor waxes is found in "Sanitation News Letter", Vol. II, No. 21, November 1947, published by Joseph E. Seagram & Sons, Inc., Louisville. Vol. II, No. 22, of the same publication describes the various test methods used for evaluating and aiding in the selection of wax products by the chemistry division of the research department, Joseph E. Seagram & Sons, Inc., Louisville. The article on testing of wax products tells how to evaluate certain fundamental characteristics of the wax such as its uniformity, hardness, transparency of film, wearing qualities, gloss, resistance to water and other chemicals, effect on various surfaces, ease of application, and extent of surface covered.

NAIDM Mid-Year Meeting

The 1948 mid-year meeting of the National Association of Insecticide and Disinfectant Manufacturers, will be held June 14, 15, and 16, at the Hotel Monmouth, Spring Lake, N. J. The 35th annual meeting will be held December 6 and 7, 1948, at the Hotel Commodore, New York City.

Correction Note

J. N. Borglin, Hercules Powder Co., Wilmington, informs us of a correction which should be applied to his article "Naval Stores Chemicals in the Disinfectant Field" which appeared on page 147 in the December issue. The third paragraph of the right hand column on page 149 should read: "Significant is the fact that at 20° C., modified rosin amine acetate at a ratio of 1:12.000 completely killed *E. typhosa* in ten minutes . . ."

CLOSING OUT ENTIRE INVENTORY

BOBRICK VALVES AND DISPENSERS

All new, unused, in original packages

2200 MODEL C 861-A for only \$1.50 each

(Lather Horizontal Valve)

200 MODEL 41 for only \$3.25 each

(Lather Dispenser — Glass Globe)

BOX #101

c/o SOAP & SANITARY CHEMICALS

W A N T E D .

INDUSTRIAL ENTERPRISE

*Large financially
powerful diversified
organization
wishes to add another
enterprise to present
holdings*

CASH PAID

*For Capital Stock or Assets
Existing Personnel Normally
Retained*

Box No. 1215

1474 Broadway, New York 18, N. Y.

OXIWAX

Oxidized Petroleum Wax

Emulsions — Floor Polishes

Carbon Paper — Protective Coatings

M. P. 90-190°F

Acid Value 5-55

AMORWAX

Refined Petroleum Wax

Paste Polish — Shoe Polish

Laminating — Impregnating

Insulation

M.P. 100-195°F Pen. 2-25 Color Amber-White

Refined Genuine Yellow Ozokerite

Ceresines

Paraffines

Write for

formulations, specifications, quotations, tech. data

PENNOTEX OIL CORPORATION

29 Broadway

New York 6, N. Y.



ANILINE OIL
CRESYLIC ACID
NAPHTHALENE
TAR ACID OIL

TRICRESYLPHOSPHATE
TRIPHENYLPHOSPHATE
XYLIDINE

COALTAR CHEMICALS CORPORATION

William D. Neuberg, President

GRAYBAR BLDG., 420 LEXINGTON AVE., NEW YORK 17, N. Y.

TELEPHONE: MURRAY HILL 5-9508

CABLE: "COALTARKEM"

AAEE Chicago Meeting

The American Association of Economic Entomologists held its annual meeting in Chicago, December 27 to 30, 1947 at the Congress Hotel. S. A. Rohwer, Ass't. Chief, Bureau of Entomology & Plant Quarantine, USDA, was elected president of AAEE to succeed Dr. Ernest N. Cory, College Park, Md. Discussions on the latest insecticidal compounds, nomenclature, application, methods, and reports on the effectiveness of various compounds featured the sessions. A highlight of the Saturday's meeting was a discussion by Dr. R. B. Friend, New Haven, Conn., on the National Research Council's program for evaluating insecticides. Dr. Cory spoke on Sunday's program, discussing "Totalitarian Insects," and covered the collectivist habits of bees, termites and other insect life. Sunday afternoon's program dealt with insects affecting livestock and man, plant pest control and quarantine, apiculture and insects affecting mis-

cellaneous crops. Dr. E. W. Laake, Kerrville, Texas, described tests with chlorinated insecticides on cattle bothered with horn flies in the mid-west. Discussions were held in the section on plant pest control and quarantine covering practical steps to be taken to prevent foreign plant viruses from becoming established in U. S. A. The section on apiculture covered a number of problems relating to bee health, honey production, and control measures to combat Foul-brood disease. Sulfa drugs, antibiotics and other materials including sulfathiazole were reported to have been effective. Drs. Floyd F. Smith and A. L. Boswell, Beltsville, Md., reported on DDT control of *Gladiolus* and Dr. W. E. Dove told of successful field experiments on control of stored grain insects with piperonyl butoxide. A talk on "Application of Radio-active Elements to Entomology" by Dr. Robert L. Patton, Cornell University, Ithaca, N. Y., featured the annual banquet at the Congress Hotel.

Pac. Chem. Names Sanders

Raymond Sanders was recently appointed general manager of Pacific Chemical Co., Los Angeles. The company is now affiliated with American-Marietta Co., Los Angeles, and is manufacturing chlorine solutions as well as the standard industrial items. Mr. Sanders started with Pacific Chemical Co. in the early '20s as manager. He left them in 1932 to become vice-president and general manager of Turco Products, Inc., Los Angeles.

Folder on New Synergist

A folder describing the physical, chemical and synergistic properties of "Octacide-246" was released in December by its manufacturer, Van Dyk & Company, Belleville, N. J. The new chemical, a tricyclic N-alkyl pyrrolidone, is an amber colored, slightly viscous liquid, miscible with kerosene and white oils, benzol hydrocarbons, aliphatic alcohols and halogenated hydrocarbons. It forms clear solutions stable to heat and light. It is said to have a low physiological activity to mammals. The folder shows figures indicating the Peet-Grady kill and

knockdown of several popular fly spray compositions, and the synergistic effects of small amounts of "Octacide 246" when used with pyrethrins and DDT, or pyrethrins and chlordane. Cost figures for these compositions are also listed.

American Potash Expands

American Potash & Chemical Corp. recently completed a new \$300,000 research laboratory at its Trona, Calif., plant. Air conditioning is a feature of the new 16,800 square foot research unit. New products and methods will be given practical tests in a two-story pilot plant. A new \$4,500,000 carbonation plant, under construction near the laboratory, to be completed in 1948 will increase production of soda ash and borax.

Anchor-Hocking Moves

The Pacific coast closure division, Anchor Hocking Glass Corp., Los Angeles, moved into a new, one-floor factory at South Gate, Calif., in late fall. The move will make possible an estimated 25% increase in closure output.

New Metal Cleaner

A new, heavy-duty, still and soak tank metal cleaner has been announced by Klem Chemicals Inc., Dearborn, Mich. Although developed chiefly as a general purpose cleaner, "Klem Metal Cleaner 159" is claimed to be valuable as a cleaner before galvanizing and porcelain enameling as well as a soak cleaner before plating of various metals. It has been found valuable by engine rebuilders for removing carbon smut. Cleaning procedure for soak or still tank requires a concentration of only 6 oz. of the product to a gallon of water.

Varley Appoints Two

James Varley & Sons, St. Louis, recently appointed two representatives for western territories. Ted Bowers, Los Angeles, was appointed direct representative for California, and Elsworth Bushnell will cover the Minneapolis-St. Paul area. Mr. Bowers will contact the wholesale and jobbing trade with a complete list of disinfectants, insecticides and allied sanitary products. He has had many years experience in the sale and distribution of floor maintenance and allied products and is a member of the National Sanitary Supply Association. Mr. Bushnell has had many years experience in the chemical field and during the war served as the head of the War Production Board in the Minneapolis-St. Paul area.

As soon as arrangements can be made, stocks of all the company's products will be warehoused in Minneapolis for distribution to the trade in that section. Sales will be made only through wholesale and jobbing outlets.

Eastern PCO's Meet

The Eighth Annual Conference of the Eastern Pest Control Operators will be held at the University of Massachusetts, Amherst, February 2, 3, 4, 1948. This year's "Bug of the Year" will be flies. A group of round-table discussions will be held on rodent control subjects. It is the desire of the faculty to limit the registration this year to 75.

ATTENTION JOBBERS

Let us compound your formulas for dry alkali mixtures at surprisingly low cost — from a barrel to a carload. Complete stocks of alkalies maintained at our plant. Pulverizing facilities also available.



AXTON-CROSS CO.

CHESHIRE, CONN.

Tel.: New Haven 5-5159



Lo-Cost Bottle Labeling



Unit costs decrease as production increases. Simple to operate—easy to clean.

POTDEVIN LABEL PASTERS

Write for **FREE** Catalog LP-10

POTDEVIN MACHINE CO.

EST. 1893

1256 38TH ST. BROOKLYN 18, N. Y.



INDUSTRIAL CHEMICALS

POTASSIUM CARBONATE

CALCIUM HYPOCHLORITE
(High Test)

SYNTHETIC DETERGENTS
(All-purpose and Special Laundry)

SPRAY DRIED SOAPS
(99% Anhydrous)

Spot Warehouse Stocks

Philipp Brothers Chemicals, Inc.

37 WALL STREET, NEW YORK 5, N. Y.

HARTFORD
PHILADELPHIA

BOSTON

PROVIDENCE
BALTIMORE

Limited Quantities

TRI SODIUM PHOSPHATE

Now Available from Warehouse Stock

JOHN A. CHEW

INCORPORATED

60 E. 42nd ST.

MU. 2-0993

NEW YORK CITY 17

Brandes Joins R & H

Gordon Brandes has joined the sales staff of Rohm & Haas Company, Philadelphia 5, Pa., the company announces. Mr. Brandes, 32 years of age, is a graduate of North Dakota State Agricultural College where he specialized in Botany. He was formerly associated with Agricultural Supply Co., Grand Forks, N. D. With Rohm & Haas, his duties will be dealing with technical and sales problems in various parts of the country. His headquarters will be in Philadelphia.

Adaciom Elects Varley

The Associated Drug & Chemical Industries of Missouri, popularly known as Adaciom, elected Jack Varley, of James Varley & Sons, Inc., St. Louis, as president of the association at their annual meeting, held December 10th, at the Coronado Hotel, St. Louis. Others elected were: Marvin Yates, Marvin Yates Co., 1st vice-president; Neal Draper, Solvay Sales Corp., 2nd vice-president; O. W. Rash, Lambert Pharmacal Co., 3rd vice-president; J. Louis Lanz, J. L. Lanz Co., treasurer; and John A. Mueller, S. Pfeiffer Mfg. Co., secretary. Directors are Franc Barada, Fritzsch Brothers, Inc.; H. L. Dahm, G. S. Robbins and Co.; Ben Donaldson, Parke-Davis and Co.; Charles S. Fox, Aluminum Co. of America; George C. Irwin, Irwin-Willert Co.; Morton Meyer, Thompson-Hayward Chemical Co.; Glenn H. O'Neal, Dow Chemical Co.; A. L. Saeks, The Puro Co.; and I. J. Stanley, Monsanto Chemical Co.

Clifoorn Expos. Chairman

Dr. L. E. Clifoorn, director of product and process research for Continental Can Co., Chicago, has been named chairman of the Exposition committee which will develop plans for the 1948 National Chemical Exposition to be held in Chicago next Oct. 12 to 16, under sponsorship of the Chicago section of the American Chemical Society. Assisting him on this committee will be the following: George A. Crapple, Wilson & Co.; Arthur A. Frost, Northwestern Technological Institute; R. R. Higgins, Sherwin-Williams Co.; Karl F. Mattil, Swift & Co.;

C. S. Miner, Jr., Miner Labs.; Gordon T. Peterson, Continental Can Co.; M. C. Rogers, R. R. Donnelley & Sons Co.; and J. Robert Spraul, General American Transportation Corp. An advisory committee has also been created on which 20 leading figures in the chemical industry have already agreed to serve.

Insecticide Act Exemption

A blanket exemption from the provisions of the Federal Insecticide, Fungicide and Rodenticide Act was signed late in December by Harry E. Reed, Director, Livestock Branch, Production and Marketing Administration, U. S. Department of Agriculture, making it unnecessary for manufacturers and distributors to apply for a specific exemption. The exemption will be in effect for one year in the case of rodenticides and herbicides shipped prior to December 25, 1947, and insecticides and fungicides shipped prior to June 25th, 1948. It is subject to the provisions that herbicides and rodenticides must be effective for the purposes intended and not likely to cause injury to man when used as directed, and that the insecticides and fungicides comply with the provisions of the Insecticide Act of 1910. The department also announced that, in those cases where applications for registration of rodenticides and herbicides have been made prior to December 25, 1947, no enforcement action will be taken pending the processing of such applications.

New Floor Wax Brochure

A new, profusely illustrated brochure describing the processing of its products was recently issued by Enterprise Paint Manufacturing Co., Chicago. The processing of floor waxes and floor seals is described and illustrated.

Represents General Wax

Cornelius Products Co., New York, has announced that Mrs. Edith Alt, its midwest representative, also covers the same territory for its affiliate, the General Wax Refining Co. Mrs. Alt's headquarters are at 14 East Jackson Blvd., Chicago.

Mills Heads "Aerasol" Dept.

John H. Mills, who has been in charge of "Aer-a-sol" sales at Bridgeport Brass Co., Bridgeport, Conn., since 1943, has been advanced to the position of manager of the "Aer-a-sol" department, it was announced December 19th. Mr. Mills will be responsible for the complete "Aer-a-sol" program, including sales, manufacturing and engineering. Bridgeport Brass has recently arranged with Westinghouse Electric and Manufacturing Corp. to take over the trade mark and active business of their "Bug Bomb" division. The company plans to start a new campaign on a complete line of "Aer-a-sol" units in early 1948. Approximately three hundred sales agents will be engaged in the campaign which will include radio, newspaper and magazine advertising.

The company is, at present, merchandising a line of "Aer-a-sol" insecticide products in 16 oz. and 3 1/2 oz. containers. A new 12 oz. "Aer-a-sol" will be added to the regular line of products and will be packaged in a new type container with finger-tip dispensing control. Mr. Mills is chairman of the Aerosol committee of the National Association of Insecticide and Disinfectant Manufacturers.

Earl Brenn to Denver

Earl Brenn, vice-president of the Huntington Laboratories, Inc., Huntington, Ind., has moved his headquarters to the Denver office of the company and will act in charge of sales for the Rocky Mountain area. Mr. Brenn, son of J. L. Brenn, president of Huntington Laboratories, has spent the past three years in the main office and plant of the firm in Huntington, Ind. He returns in charge of the Denver office to which he was formerly attached.

New TEPP Product

A new insecticide marketed as "Nifos-T" containing 40 per cent tetraethyl pyrophosphate is now being produced in commercial quantities by Monsanto Chemical Co., St. Louis. It is said to be three times as powerful as its German predecessor but no more expensive. The company recommends its use for aphid and mite control.

ATTENTION—PERFUMERS

Adjust Your Formulae By Using Our
Substitutes of Proven Merit

Hydroxy Citronellal
Geraniol
Citronellol
Rhodinol



AVAILABLE

Other Replacements For Aromatic Chemicals, Essential, and Flower Oils.

SOAP and COSMETIC PERFUMES
INDUSTRIAL ODOR MASKS

SAMPLES ON REQUEST

SEELEY & CO., INC.

136 Liberty Street — New York 6, N. Y.

Factories and Warehouses

Los Angeles, Calif.

Nyack, N. Y.

LET US DO THE DIRTY WORK

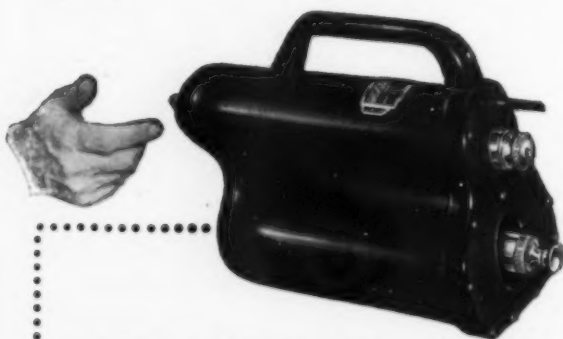
No need for you to pay for trade names nor put up with backbreaking dusty and disagreeable work any longer.

We carry a complete stock of alkalies, soaps, synthetic detergents, perfumes, colors and have complete facilities to quickly compound your dry formulations to your specifications. Kegs, barrels, to carloads.

Write us today . . . you'll find our charges amazingly low, our service high.

Service Associates

257-269 WEST GAY ST., COLUMBUS 8, OHIO



ENDS INSECT PROBLEMS

It's the Commando Aerosol Gun. Used with Commando Aerosol Insecticide* it does a thorough job wherever insect pests are a problem. Uses only electric heat (110-120 v.) to produce a DRY VAPOR. There's no water tank to fill. For a demonstration to prove how Commando Aerosol Products can solve your problem, *clip the coupon today!* Sold only through authorized dealers.

*Sold in California as Aerosol Insecticide for the Commando Aerosol Gun.

MAYFAIR INDUSTRIES, INC.

2442 Irving Park Rd., Chicago 18, Illinois

I want to know more about Commando Aerosol Products.

NAME _____

ADDRESS _____

CITY _____ ZONE _____ STATE _____

2,4-D

Acid
Sodium Salt
Trithanolamine Salt
Isopropyl Ester
Butyl Ester



DDT



KOLKER CHEMICAL WORKS

80 Lister Avenue

Newark 5, N. J.

Lennig Co. Dissolved

Charles Lennig & Co., Philadelphia, is being dissolved as a separate corporation associated with Rohm & Haas Co., Philadelphia, the business to be continued without change under the name of Lennig division, Rohm & Haas. The company started in Philadelphia as an importing firm in 1819 later turning to heavy chemical manufacture, notably alum. Rohm & Haas acquired control of the Lennig Co. in 1920 and soon after this many new chemicals, notably methylamines, were added to the line. Transfer of the business operations of the Lennig Co. to Rohm & Haas will not change policies or personnel, either externally or internally, it was announced by Rohm & Haas, and chemical products now being manufactured and sold under the Lennig name will continue to be available from the Lennig division.

Schimmel Sales Meeting

The annual two day sales convention of Schimmel & Co., New York, was held December 9 and 10, attended by the sales and technical staffs. Reports were heard from Gert Keller, general manager, who led the meeting, and from the domestic and foreign sales departments, as well as from the Schimmel perfume, analytical and chemical staffs. Plans for the future were discussed. At the same time the new and enlarged quarters of the firm were inspected by the out-of-town members of the organization. A cocktail party on the premises closed the first day and a dinner party at the Hotel Plaza wound up the meeting.

Disinfectant Testing

The question of disinfectant testing is discussed in the October 1, 1947, issue of "Sanitation News Letter," Vol. II, No. 19, published by Joseph E. Seagram & Sons, Inc., Louisville. Some of the problems involved in testing disinfectants are pointed out and some of the methods of testing now in actual use are commented on. The phenol co-efficient method occupies a prominent place in this discussion. The article states that the efficacy of the phenol co-efficient test for testing chlorine, heavy

metal salts, synthetic phenols, and the quaternary ammonium compounds is open to question. A bibliography of references to several modifications is offered.

CCDA Meets in March

The Commercial Chemical Development Association will hold its annual meeting in New York City at the Roosevelt Hotel, March 9, 10, 1948. Financial aspects of chemical development will be discussed at the morning meeting on March 10th. The afternoon session will be devoted to gearing commercial chemical development to sales, research and manufacturing. Management's appraisal of commercial chemical development will also be discussed. Lauren B. Hitchcock, vice-president, Quakers Oats Co., Chicago, is president of CCDA; James H. Boyd, consultant, is chairman of the general program committee; and John B. Calkin, coordinator of research, Union Bag and Paper Corp., New York, is chairman of the New York meeting.

New Market for Veegum

R. T. Vanderbilt Co., New York has announced the extension of their hydrophylic colloidal magnesium aluminum silicate product, "Veegum" into the household products field. Veegum is a familiar item in the cosmetic industry where its emulsifying, suspending and stabilizing properties are used. It is expected to have applications in metal cleaners and polishes, auto and furniture polishes, shoe polishes and saddle soaps. A variety of formulas are available from the company to demonstrate its use in such items.

Cincinnati DCA Elects

The recently incorporated Cincinnati Drug & Chemical Association has elected Forrest M. Luckett, Cincinnati district representative, Monsanto Chemical Co., St. Louis, as its first president. R. J. Spatta, Merchants Chemical Co., New York, is vice-president; Walter M. Eller, Fritzsche Brothers, New York, secretary and Frank B. Nowland, G. H. Nowland Co. treasurer.

DCAT Mid-Winter Meeting

The mid-winter luncheon meeting of the Drug, Chemical and Allied Trades Section, New York Board of Trade, Inc., New York, will be held Tuesday, January 27th, 1948 at the Hotel Astor.

Fred J. Stock, DCAT chairman, has appointed the following chairmen to head the active committees for the 22nd annual dinner of the DCAT to be held at the Waldorf-Astoria Hotel, March 11th: Dinner arrangements committee, Lloyd I. Volckening, Ivers-Lee Company; Program committee, Harold M. Altshul, Ketchum & Co.; Reception committee, Robert B. Magnus, Magnus, Mabee & Reynard, Inc.; Publicity committee, Harold C. Green, L. Sonneborn Sons, Inc.

D. & O. Plant Award

An award of merit has been presented to the New York plant of Dodge & Olcott, Inc. by the Greater New York Safety Council, Inc. for the excellent record the plant has achieved in minimum loss of man hours as a result of accident. The New York plant, entered under Class 3, Group DD, has a record for a six months' period for a total of 175,075 man hours with no time lost resulting from accident. A merit plaque was formally presented to G. R. Morris, New York plant superintendent, at the annual award dinner of the Greater New York Safety Council, Inc., held at the Hotel New Yorker on December 9.

MM&R Annual Sales Meet

The annual sales meeting of Magnus, Mabee & Reynard, Inc., New York manufacturers of essential oils, flavoring and perfuming materials was held January 3, 4, and 5 in the Hotel Warwick, New York City. Keynoting the yearly gathering of MM&R representatives from all sections of the country was the theme "Be Prepared—Know How."

Benham Joins Dobbins

John F. Benham, recently secretary, National Sprayer & Duster Assoc., has been appointed sales manager, Dobbins Mfg. Co., Elkhart, Ind. Mr. Benham succeeds G. H. Collier, vice-pres. who will handle special sales.

SOPAC

SAFETY POWDERED HAND SOAP
COMBATS DERMATITIS

* hygienically safe, fast, very economical * low alkalinity * light density * vegetable scrubber * soothing * improves working conditions * tried, tested and proved by billions of wash-ups in all industries * "A Wee Bit Goes a Long Way" * QUALITY * VALUE * IMMEDIATE DELIVERY. ALSO * hand and machine dishwashing compounds * medium and heavy duty cleaners * no wipe auto wash * synthetics * private brands * soap dispensers.

SKOTCH PRODUCTS CORP.

2710-12 Detroit Ave.

Cleveland 13, Ohio

Depend on

DERRIS, INC.

ROTENONE PRODUCTS

TO FIT YOUR MOST EXACTING NEEDS



DERRIS and CUBE



Powder, Resins, Extracts

SAMPLES ON REQUEST



DERRIS, INC.

79 WALL STREET NEW YORK 5, N. Y.

FACTORY AND LABORATORIES
METUCHEN, N. J.

We announce development of new type soap colors

PYLAKLORS

They have good fastness to alkali, light, tin, ageing.

The following shades are already available

Bright Green	Dark Brown
Olive Green	Palm Green
Yellow	Golden Brown
True Blue	Violet

*It will pay you to send
for testing samples*

PYLAM PRODUCTS CO., INC.

Manufacturing Chemists, Importers, Exporters

799 Greenwich St.

New York City 14

Cable Address: "Pylamco"

Big Profits

WITH THESE
FAST SELLING
LINES

- PARA Deodorizing Blocks
- PARA Deodorizing Crystals
- PARA Moth Products

Vaporizers—Crystals—Cakes

- DDT & Chlordane Concentrates

Specially compounded for household and agricultural insecticides

- Refined NAPHTHALENE

Flakes and Balls—Packages and Barrels

- SHUR-KATCH Rat and Mice Pads

Catches Rodents Like Flypaper Catches Flies

NO POISON — NO BAIT

Write for Details and Prices NOW!

ELKAY PRODUCTS CO.

323-27 West 16th St. New York 11, N. Y.

